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ABSTRACT

One of the focal points of this study is the investigation of the relationship between rates and types of imitative responding and responsiveness to social reinforcement (approval). Subjects were 96 children (5 to 6 years old) equally divided according to sex and race (Negro and white). Findings indicate that: (1) it seems tenable to assume that a relationship between verbal imitation and socioeconomic level does exist, although the nature of the relationship and the relevance of other factors is still unclear; (2) it might be fruitful to maintain the distinction of verbal and motor imitation as separate classes of imitative responses; (3) it appears that there is a greater difference in the rates of responsiveness between white males and white females than between Negro males and Negro females; and (4) patterns of responsiveness are related to whether the social influencing agent is physically or symbolically presented to the subject. The results were interpreted as indicating the complexity of the multidimensional phenomena called responsiveness to social stimuli. (Author/TA)

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THE EFFECTS OF SELECTED TEACHER AND PUPIL CHARACTERISTICS ON SOCIAL LEARNING

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Tallahassee, Florida 32306

October 1970

U.S. DEPARTMENT OF
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I. INTRODUCTION

Social responsiveness has been investigated from several points of view in recent years. This study attempted to deal with questions which have arisen as a result of viewing responsiveness to social stimuli within these different frameworks and paradigms. Several theorists and researchers have directed their attention to imitative learning as the primary vehicle for the acquisition of certain classes of social responses. Of most concern here are the theoretical notions of social influence posited by Bandura (1962, 1965) and Bandura and Walters (1963). Their position is that much of a child's behavioral repertoire develops through his observation and imitation of the behaviors of significant adults. These modeled responses are acquired in large molar units, without the necessity of direct reinforcement or the necessity for the observer to perform the model's responses during acquisition. Whether these behaviors, learned through imitation, remain as active parts of the child's behavioral response system is a function of the consequences of the responses for the child. The adults who serve as models for the child often reflect the social norms and as a result, serve as agents for his socialization.

Since the young child's contact with the outside world is restricted, his parents initially become the primary models for his socialization and development of sex appropriate behaviors (Mischel, 1966). In addition, the parents, through their behaviors, sometimes represent specific subcultural models who the child imitated and, as a result, also becomes a member of that particular cultural community. The whole process has been termed identification, socialization or internalization depending upon the theoretical bent of the writer.

Bandura and his colleagues developed two paradigms for testing, expanding and refining their notions. These designs have been particularly useful because they represented ways of investigating the effects of certain variables as they related to social learning. In other words, Bandura has provided us with an experimental analogue for investigating imitation (a type of responsiveness to social stimuli).

The two paradigms employ basically the same procedure with slight modifications. Both approaches place a child in a game-like situation with an experimenter and a model or models. The child is told by the experimenter that he (the child) and the model(s) will play a game of guessing which of two boxes contains an object designated as hidden. The model(s) always looks for the object first and the child follows. While looking for the object the model(s) performs a sequence of verbal and motoric behaviors not directly related to the search for the object. The child is then given the opportunity to play and the number and types of behaviors he performs similar to those of the model(s) preceding him are recorded. The imitative responses performed by the child are said to reflect a degree of responsiveness to a model and influence exerted by that model.

In some cases two models perform different behaviors before a child gets his turn. This design has been utilized by Bandura, Ross, and Ross (1963) and provides the relative amounts of influence that each model exerts on each subject. The other approach has been demonstrated in a study by Bandura and Huston (1961). They exposed each child to only one model exhibiting one sequence of behaviors.

Patterson (1965) prefers to talk about responsiveness to social stimuli (RSS). RSS may be viewed as having "three components: responsiveness to social approval and disapproval, imitation and ability to discriminate among social cues." It has been assumed that these three components are related with each contributing unique variance to a total RSS measure. Patterson has devoted most of his time to the investigation of responsiveness to social approval or disapproval. The effectiveness of social approval or disapproval with children is often measured experimentally by some form of a marble dropping or sorting task (Gerwirtz & Baer, 1958; Stevenson, 1961; Zigler & Kanzer, 1962; and Patterson, 1963). All of the above people utilized essentially similar tasks. The basic task involves the use of a container with at least two holes and a large supply of marbles. The child is initially told to continue placing the marbles in the holes. After a predetermined period has elapsed, the experimenter begins to make a series of comments indicating social approval or disapproval. Rates of responding during these sessions (reinforcement periods) are then compared with rates of responding during times when experimenter approval or disapproval are absent. These comparisons are said to reflect the degree to which a child is responsive to social approval or disapproval.

One of the focal points of the present study is the investigation of the relationship between rates and types of imitative responding and responsiveness to social reinforcement (approval). Patterson's position, implies that a significant moderate relationship would exist between the two types of dependent measures. Separate lines of research in the two areas might suggest a different hypothesis. For example, Gewirtz and Baer (1958) manipulated deprivation and satiation of social approval prior to bringing Ss to the marble dropping task. They found that children were more responsive to social approval during the marble dropping procedure if they were previously deprived of social approval for a twenty minute period. Those children who were satiated on social approval before participating were least responsive. Ss brought directly to the game without any pre-experimental manipulations, occupied an intermediate position when exposed to social approval during the marble dropping game.

Bandura and Huston (1961) exposed Ss to similar experiences before introducing them into the imitative learning situation. However, their results were somewhat different from Gewirtz and Baer's. They found that children who had received social approval performed more imitative responses than those receiving no attention. These two studies would suggest that imitative learning and responsiveness to social approval may be unrelated phenomena. The design utilized in the proposed study provided information related to this problem. Little if any research investigating this question has been done within a single experimental design.

Other variables of concern to this writer were race and sex of the child and the adult involved in the social influence paradigms. Research in varying amounts has been reported on the above mentioned variables. Findings from other studies will be briefly summarized and categorized according to the variable and the type of dependent measure (imitation; responsiveness to social approval; preference for the influencing agent) utilized.

Imitating Learning

Sex of the observer and model

These variables have been of some concern to researchers because the imitative learning paradigms may represent an experimental model for the investigation of sex role identification and the acquisition of sex appropriate behaviors. However, results have been equivocal and partially dependent on other factors such as age and class of responses investigated. Most of the significant results have been found when the effects of modeling procedures on the elicitation of aggression were investigated. Boys typically imitated more under this condition (Bandura, Ross, & Ross, 1963; Bandura & Walters, 1963; and Bandura, 1965). Many investigations utilizing "neutral" imitative behaviors have failed to find significant differences between males and females (Bandura & Huston, 1961; Bandura & Kupers, 1964; Bandura & Whaley, 1966; Rosenhan & White, 1967; Mischel & Liebert, 1966, 1967). Several investigators do report sex differences. May (1965) found that five-year-old boys performed more imitative behaviors, but found no differences at ages three and seven. Roseblith (1959) found that girls in general were less sensitive to experimental manipulations involving imitation. However, in 1961, she reported more imitation for boys but more matching of color preferences by girls to those of a model. Girls imitated more than boys in a study by Hetherington (1965). Interaction effects between isolation and imitation favoring girls were observed by Hanlon (1965) while no isolation resulted in more imitation by boys. May and Breyer (1968), using male white and Negro subjects and white male and female models, found that the male model was imitated more.

In general, the area has remained somewhat confused because of the use of different paradigms and prior experimental manipulations. In addition, the sex of the model has often been held constant. The present study focused on the same two variables with these points taken into account.

Race of the observer and model

No study to this writer's knowledge has utilized race of the model as a variable. The study mentioned above by May and Breyer (1968) focused on race of the observer. They found differences in verbal but not motoric imitation between races.

Responsiveness to Social Approval

Sex of subject and experimenter

One of the most consistent findings in the social reinforcement literature has been the tendency of opposite sexed experimenters to elicit higher rates of responding. Gewirtz and Baer (1958) in the study described above found that social reinforcement mediated by a male resulted in more responses from girls than boys. Stevenson (1961) found cross-sex effects with both male and females serving as reinforcing agents. He used children ranging in age from six to ten years old. The effects he reported were only significant with children in the six-year to seven-year age range. Consequently, his findings have special relevance for the present study. Stevenson and Knights (1962) also found similar effects when he used a population of retardates. Comparable effects have also been reported by Stevenson and Allen (1964) with college students.

Race of the experimenter and subject

This topic is also marked by a paucity of research. Investigators using different measures (i.e. anxiety and test taking behavior) have found these variables to be fruitful areas of research. However, only two studies are reported which appear to be relevant to the questions at hand. Kennedy and Vega (1965) investigated the effects of race of the experimenter and verbal incentives on the performance of 324 rural Negro children attending the second, sixth and tenth grades. Verbal incentives (praise or blame) were administered to children while they performed a visual discrimination task. The dependent measure was reaction time between a card presented on a screen and the depression of a switch by the subject. The most significant finding was the differential reactions to blame. _S_s performed at a slower rate when blame was mediated by a white experimenter. No significant differences were found between the types of experimenters under the praise condition.

Rosenhan (1966) used a white male experimenter and seventy-two first grade boys. He found that under these conditions Negro and white children performed similarly. A marble dropping task, analogous to the types described previously; was used to obtain the dependent measure.

This concludes the list of adult and child characteristics which were of concern for the present study. It was hoped that the inclusion of all the combinations of characteristics into a single design would help to clarify the effects of sex and race variables and, in addition, determine the relationship between imitative learning and responsiveness to social approval.

Expressed Preferences for the Influencing Agent

The work of Zigler and his colleagues (Berkowitz & Zigler, 1965; Berkowitz, Butterfield & Zigler, 1965; and McCoy & Zigler, 1965) implies that an analysis of reinforcer effectiveness is quite a bit more complex than what is typically reported. Zigler suggests that the child develops both positive and negative reaction tendencies toward the reinforcing agent which serve as mediators for the effectiveness of the social reinforcers dispensed. In other words, a child will develop "valences" or "attitudes" toward the agent which in turn are related to Ss responsiveness to social reinforcement. Zigler attempted to support his position in a series of studies utilizing an adaptation of the marble dropping procedure as a base for his dependent measures. The agent told the child that he was to drop a yellow marble in one hole and a blue one in another. S was also informed that he could stop whenever he wanted. The amount of time S spent dropping the marbles before stopping was recorded as the dependent measure. It was expected that this measure would reflect Ss valence for the agent with which he was interacting. One of the studies (Berkowitz and Zigler, 1965) found that previous types of interactions (positive, negative and no social contact) resulted in differential amounts of time interacting with the agent. The following results were reported in another study (McCoy and Zigler, 1965). The authors found that positive interactions by a familiar agent resulted in longer sustained activity on the task than neutral interactions by a familiar agent. A stranger administering the task resulted in the shortest duration of on-task behavior.

Zigler's research suggests that a valence or preference measure may be useful when looking at responsiveness to social stimuli. Therefore, this writer included preference for the influencing agent as a third dependent measure to be investigated within the RSS framework mentioned above. The inclusion of preference data enabled the author to look at the relationships between preferences for a particular adult characteristic and responsiveness on the other two dependent measures with the same adult characteristic. These relationships were investigated by showing photographs of the models and reinforcer agents to each child and allowing him to behaviorally indicate his preferences. (see procedure). In addition, data bearing on relative preferences for particular adult characteristics and the interactions for preferences between subject and adult characteristics were provided.

Methodological Considerations

Other concerns of this study were methodological in nature. The research involving imitation can be criticized on the grounds that it may be context-bound in the sense that there has been little if any replication of findings across models within the same paradigms. In this study an attempt was made to deal with this difficulty by using three models representing each of the model variables under investigation. Research on responsiveness to social approval has usually dealt with this problem in the manner just proposed.

Another methodological issue centers around the use of imitative learning and responsiveness to social approval measures in a repeated measure design such as the one suggested by this writer. Previous research, May and Seymour (1968), has demonstrated that the imitative learning procedure can be continued for as many as fifty trials without expecting changes in level of performance. The present study repeated the imitative learning procedure four times for a total of 48 trials. This was never done, but results from the May and Seymour study suggested that this was not an abuse of the basic design.

The situation is somewhat different for the measures of the effectiveness of social approval. A marble dropping task, which utilize base rate preferences to one of several holes and focuses on changes in rates of responding to a less preferred hole would seem to be particularly susceptible to distortion in a repeated measure design. Patterson, Littman and Hensy (1964) obtained high test-retest reliability (.70) when they tested children twice during the span of eight days. However, the data were insufficient to justify the use of this kind of task in a situation calling for four repeated measures within the space of three weeks. Consequently, a modification of the basic marble dropping procedure was attempted. It was felt that the use of one hole, instead of two or more, would result in a measure of social responsiveness less contaminated by learning effects. This task will be more thoroughly described in the procedure.

II. METHOD

Subjects

Ss were ninety-six children from the Headstart program in Tallahassee, Florida, who ranged in age from sixty to seventy-two months. They were equally divided according to sex and race (Negro and white) characteristics so as to form four groups of twenty-four subjects.

Apparatus and materials

The experiment involved three different procedures designed for assessing imitative learning, responsiveness to social approval and expressed preferences for the adults. Data for the three procedures were recorded on two record sheets developed by the experimenter (see Appendix A).

Materials used for the imitative learning phase included: two small stuffed poodles; two equally sized blue, hinged, cigar-type boxes; and marbles. The responsiveness to social approval task required the use of a stop watch, a plastic receptacle containing approximately 300 small metal pellets, a yellow hinged cigar-type box with a hole one inch in diameter in the center and two hand counters.

Photographs of the adults who the children interacted with were taken. They were individually placed on green colored cardboard backing and presented to the children.

Procedure

Data collectors were twenty-four adults, ranging in age from eighteen to twenty-six years. Six represented each race-sex combination. Models and experimenters were assigned various teams so that there were three teams for each characteristic under investigation. This resulted in twelve teams, three each with Negro male, white female, Negro female and white male adults. The models (Ms) and experimenters (Es) were teamed so that they had the same characteristics. For example, a white male M always worked with a white male E. Each team worked together throughout the experiment.

Each child participated in a total of four experimental sessions. The tasks were administered on each occasion by a different type of M (white male, Negro male, white female and Negro female). Each child was randomly assigned to one of the three teams representing each adult characteristic. There were twenty-four permutations of order of exposure to four Ms; therefore in a given group, each S was exposed to a different sequence of Ms. The procedure is schematically represented in Tables 1 and 2.

During each experimental session, a S was given the opportunity to play two games. The sequence of events was as follows: S was taken from the Headstart classroom by the experimenter and brought to the experimental room (an empty classroom). When they reached the room, the experimenter acquainted S with M by saying the following:

> "This is ______(M's first name). We are going to play some games together."

Both the M and S were asked to be seated while the game was explained. The materials used for the first game (imitative learning procedure) were two small, blue, equally sized hinged boxes. A toy, stuffed dog was placed on each of the boxes. These boxes were placed on chairs approximately thirty inches apart in the room. Eighteen feet away from the chairs was a starting line marked by chalk. The basic imitative learning paradigm employed was an adaptation and modification of the procedures used by Bandura and his colleagues.

E gave the following directions to M and the child:

> "I am going to hide a marble in one of these two boxes. You are supposed to guess which box has the marble. You (points to M) will go first and then______, you will get your turn to play the guessing game."

The task of guessing where the marbles were hidden served to distract the child from the focal point of study, while at the same time placing him in an

TABLE 1.—Order of exposure to models and experimenters[a]

Subjects[b]	Team Assignments[c]			
1	WM-1	NM-1	NF-3	WF-3
2	NF-3	WM-1	NM-2	WF-1
3	WM-3	WF-1	NF-2	NM-1
4	WM-1	NM-1	WF-2	NF-1
5	NF-2	WM-3	WF-1	NM-2
6	WM-3	WF-1	NM-1	NF-1
7	NM-1	NF-2	WF-2	WM-1
8	WF-3	WM-2	NF-3	NM-3
9	NM-3	WM-1	WF-3	NF-3
10	NM-1	NF-3	WM-1	WF-2
11	WF-3	NM-2	NF-1	WM-2
12	NM-3	WF-2	NF-1	WM-3
13	NF-1	NM-2	WF-1	WM-1
14	NF-2	WF-2	WM-2	NM-2
15	WM-2	NF-1	WF-3	NM-1
16	NF-3	NM-3	WM-2	WF-1
17	NF-1	WF-3	NM-2	WM-2
18	WM-2	NF-1	NM-1	WF-3
19	WF-1	WM-3	NM-3	NF-2
20	WF-2	NF-3	WM-3	NM-3
21	NM-2	WF-3	WM-1	NF-2
22	WF-1	NM-3	WM-3	NF-3
23	WF-2	NF-2	NM-3	WM-3
24	NM-2	WM-2	NF-2	WF-2

[a] NM Negro Male; WM-White Male; NF-Negro Female; WF-White Female

[b] Each subject number corresponds to four subjects (one Negro male, one Negro female, one white male and one white female).

[c] Subscripts refer to model-experimenter team assignments.

TABLE 2.—Order of assignment of subjects[a] to each team

Experimenter-Model Teams								
WM$_1$	1	4	9	2	10	21	7	13
WM$_2$	15	18	8	24	14	16	11	17
WM$_3$	3	6	19	5	22	20	23	12
NM$_1$	7	10	1	4	18	6	15	3
NM$_2$	21	24	13	11	17	2	14	5
NM$_3$	9	12	16	22	19	23	8	20
WF$_1$	19	22	3	6	5	13	16	2
WF$_2$	20	23	14	12	4	7	24	10
WF$_3$	8	11	17	21	15	9	1	18
NF$_1$	13	17	18	15	11	12	4	6
NF$_2$	14	5	7	23	3	24	21	19
NF$_3$	2	16	10	20	1	8	9	22

[a] Each subject number corresponds to four subjects (one Negro male, one Negro female, one white male and one white female).

imitative learning situation. The "guessing game" consisted of a total of sixteen trials. The trials were sequenced in the following order:

1. The model: two turns
2. The child: four turns
3. The model: one turn
4. The child: four turns
5. The model: one turn
6. The child: four turns

The marbles were placed in the boxes in such a way as to insure the child finding it on every other trial. The model found the marble on every trial. During the sessions the model always had the first turn and displayed, enroute to and from the boxes, a sequence of ten behaviors, half of which were verbal and half motoric. These were performed on each trial as follows:

M walked up to the starting line.

1. *put his hands over his eyes* and
2. *turned sideways* when the experimenter told him, "Don't look".
3. After a ten second interval he called out, "*Ready*" to which *E* responded, "OK". (If no response was forthcoming from the child within ten seconds *E* also responded with, "OK").
4. *M* turned around toward the boxes where the marble was hidden and said "*Go*".
5. He then walked forward *clapping his hands*.
6. When he got to the boxes he pointed to one of them and said, "*This one*".
7. He then picked up one of the stuffed dogs, situated on a box and *placed it standing on the floor*.
8. While placing it on the floor, he responded with, "*Up and down, doggie*".
9. After looking in the box, *M* picked up the dog and *put it back standing on the top of the box*.
10. After this was concluded he turned to the experimenter and said, "*All done*".

Each of the underlined behaviors was designated a response class of imitative behaviors and scored as such when they were performed by a child. On the subject's turn both the experimenter and the model recorded the incidence of his imitating any of the ten behaviors exhibited by the model. The dependent measures of concern were numbers of verbal, motor and total imitative responses per child. Scores taken by the observers were correlated to determine the inter-rater reliability for recording frequency and types of imitative responding.

After the imitation phase was concluded, M engaged in another game designed to measure his reinforcer effectiveness. E told the child that he had another good game to play:

> "I'd like to play with you but I have something else to do. So we will let________(first name of M) play with you and tell you how to play."

At that point, E retired to the back of the room, apparently busy, to help tally the child's responses in the second game. M then lead the child to a part of the room where two desks were placed next to each other. On one of the desks was a yellow hinged, cigar-type box with a hole one inch in diameter placed in the center. A plastic receptacle containing approximately three hundred small metal pellets was placed adjacent to the box. After being seated, the child was told to put some of the pellets in the hole. S was allowed to place several pellets in the hole to familiarize himself with the game and to determine his dominant hand. When this was concluded the adult responded with the following instructions:

> "______(child's name), I want you to take these balls, pick them up and put them into this box one at a time. Keep putting the balls in the hole until I tell you to stop. Don't stop until I tell you."

The game was divided into five 3-minute sessions, each being prefaced by the above directions. Three of the intervals comprised the nonreinforcement sessions while the other two constituted the reinforcement periods. Nonreinforcement periods included only the adult's verbal directions to place pellets in the hole. The reinforcement period included comments mediated by the adult implying social approval. The list of comments in the adult's repertoire included:

1. That's very good.
2. You're really doing well.
3. You really know how to play this game.
4. I like the way you are playing.
5. Very good.
6. Fine.
7. Good.

Social approval was mediated after the first response by the subject and thereafter on every third response during the 3-minute reinforcement period. Sequencing of the five 3-minute periods is listed below:

1. Three minutes of nonreinforcement.
2. Three minutes of reinforcement.
3. Three minutes of nonreinforcement.
4. Three minutes of reinforcement.
5. Three minutes of nonreinforcement.

Both E and the M recorded the number of pellets dropped during each three minute period with a hand counter. Inter-rater reliability was assessed by comparing the data from the two sources.

The effects of social approval were assessed by subtracting the number of pellets dropped during the first 3-minute period from the number dropped during each of the two reinforcement periods. In addition, the effects of verbal instructions were evaluated by analyzing the total number of pellets dropped during the three sessions when no verbal approval was mediated. The combined effects of verbal instructions and reinforcement were assessed by analyzing the total number of pellets dropped during the two reinforcement periods.

Upon conclusion of the pellet dropping task, S was taken back to his classroom. Each of the ninety-six children took part in the above procedures four times. The only change taking place on each occasion was the sexual and racial characteristics of the adults engaging in the games with the child.

On the day following the fourth experimental session, each child was given the opportunity to indicate preferences for each adult to which he had been exposed. A model or experimenter, from a team that had not previously worked with the child administered the preference task. The child was given the following instructions before beginning the task.

> I have pictures of some people who you played with before. I am going to show you two pictures at a time and you tell me how much you like one person more than the other. Now let me show you how to do it. Over here we have five little pieces of candy. If you like one of these people just a little more than the other give him these many pieces (three)

> and give the other person what's left (two). If you like one of these people much more than the other person, give him this many (four) and give the other person what's left (one). If you like one person _much_, _much_ more than the other person, give him this many (five) and don't give any to the other person. Let's practice once with these two things (interviewer presents one stuffed animal and a hand counter to the child). Let's pretend that you like this one just a little more than that one. What would you do with the candies? Now suppose that you like this one much more than the other one. Now what would happen if you liked this one _much_, _much_ more than the other?

The child continued to practice until he had responded appropriately to each of the three inquiries.

_S_s were presented with all possible combinations of pairs (six) of adults. The end product was a preference hierarchy for the four adults to which the child had been exposed. Interviewers exhibiting each of the characteristics under investigation administered the task to two children of each race-sex combination. Twelve adults (three Negro males, three white males, three white females and three Negro females) conducted the preference tasks. Each child was randomly assigned to his or her interviewer.

In summary, each child participated in the imitation and pellet dropping procedures four times; once with each adult characteristic. Each session consisted of the administration of both procedures and was separated by a two day interval. Preference measures were obtained a day after the fourth experimental session. Data on the following dependent measures were recorded for the youngsters.

For imitation:

1. _S_s' number of imitative verbal responses.
2. _S_s' number of imitative motor responses.
3. _S_s' number of total imitative responses.

For pellet dropping:

1. _S_s' rates of responding during the three nonreinforcement periods.
2. _S_s' rates of responding during the two reinforcement periods.

For preferences:

1. _S_s' summed relative preference scores for each adult characteristic.

III. RESULTS

Pearson product moment correlation coefficients were computed to determine the extent to agreement between the two adults' observations of each child. Coefficients of agreement were determined for all imitation and pellet dropping measures and are summarized in Table 3. Since the reliabilities were sufficiently high the data from the adult acting as the experimenter during the imitation procedure and casual observer during the pellet dropping task were used for analysis.

TABLE 3.—Pearson product moment correlations of inter-rater reliability for imitation and pellet dropping measures

Dependent Measure	r
Verbal Imitation	.98
Motor Imitation	.98
Total Imitation	.99
Pellet Dropping Without Verbal Approval	.98
Pellet Dropping With Verbal Approval	.99

Analyses of the data are reported in four sections: one for each of the dependent measures and one for the interrelationships between the measures. Data presentations within each section are sequenced according to their temporal occurrence of recording.

Imitation

Correlations between the different imitative measures are given in Table 4. Despite the significant relationships between all measures, there appeared to be a large portion of variance unaccounted for between verbal and motor imitation. In addition, previous studies (May & Breyer, 1968; and Dorr, 1969) indicated that Ss responded differently on tasks requiring motoric and verbal imitation. Consequently, separate analyses were accomplished for verbal, motoric and total rates of imitative responding.

TABLE 4.—Pearson product moment correlations between different measures of imitation

Types of Imitation	Verbal	Motor	Total
Verbal	----	.3992**	.8063**
Motor	.3992**	----	.8434**
Total	.8063**	.8434**	----

**P <.01

Verbal imitation

The influences of race and sex of S and of race, sex, and individual differences within characteristic replications of M on verbal imitation over trials was tested with a 2x2x2x2x3x4 repeated measures analysis of variance. The results are summarized in Table 5. This analysis yielded a sex of S by race of S interaction effect beyond the .05 level of confidence. Inspection of Fig. 1 revealed that Negro females imitated more than Negro males while white males imitated more than white females.

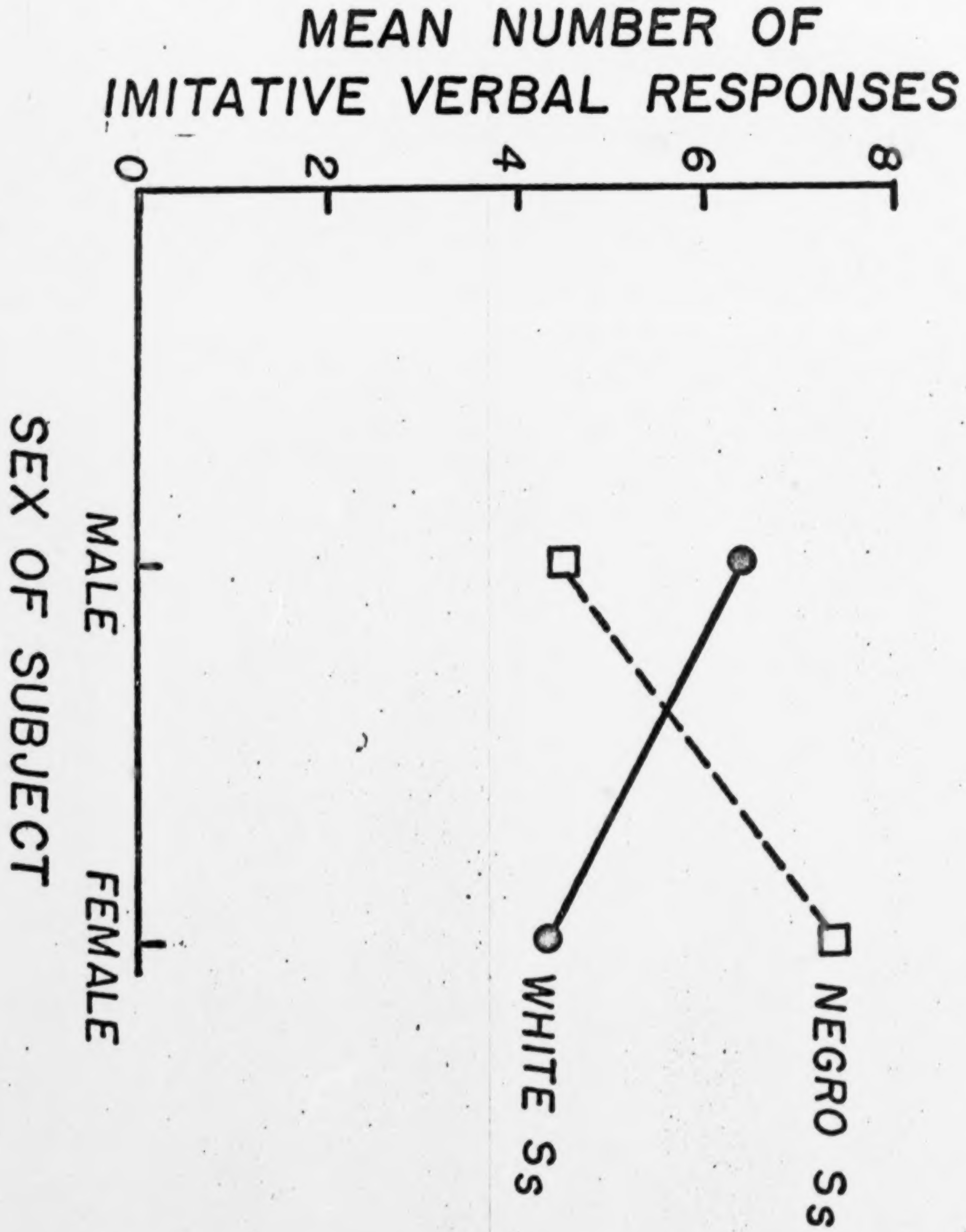
An investigation of the number of times Ss with different characteristics emitted no imitative verbal responses indicated that out of a possible 384 observations, 213 did not respond. A summary of the distribution of zero numbers of imitative verbal responses by characteristics of S is presented in Table 6.

TABLE 5.—Analysis of variance of verbal imitation

	Source	df	MS	F
Between	S Sub. Sex	1	20.1667	.2532
	R Sub. Race	1	37.5000	.4709
	M Mod. Sex	1	3.7604	.0472
	N Mod. Race	1	38.7604	.4868
	T Teams	8	109.0260	1.3698
	SR	1	555.8437	6.981 *
	SM	1	35.0417	.3145
	RM	1	.0000	-----
	SN	1	3.3750	.0423
	RN	1	2.6667	.0334
	MN	1	38.7604	.4868
	SRM	1	52.5104	.6595
	SRN	1	11.3438	.1424
	SMN	1	30.3750	.3815
	RMN	1	30.3750	.3815
	ST	8	107.0365	1.3443
	RT	8	47.3073	.5941
	SPMN	1	49.5037	.6228
	SRT	8	43.5885	.5474
	error	48	79.6198	
Within	E. Trial	3	99.0035	1.0670
	SE	3	12.3264	.1328
	RE	3	59.0069	.6359
	ME	3	17.8229	.1920
	NE	3	215.5312	2.323
	SRE	3	29.2951	.3157
	SME	3	119.7986	1.2912
	RME	3	73.3542	.7906
	SNE	3	85.1736	.9180
	RNE	3	11.3681	.1225
	MNE	3	145.4602	1.5672
	TE	24	29.8316	.3215
	SRME	3	108.9479	1.1742
	SRNE	3	69.0174	.7438
	SMNE	3	158.1319	1.7043
	RMNE	3	88.4514	.9533
	STE	24	77.4670	.8349
	RTE	24	114.6128	1.2353
	SRMNE	3	55.2257	.5952
	SRTE	24	74.4497	.8024
	error	144	92.7795	

*P <.05

Fig. 1. Mean number of imitative verbal responses of verbal imitation: sex x race of S interaction.


MEAN NUMBER OF IMITATIVE VERBAL RESPONSES
0
2
4
6
8
MALE
FEMALE
SEX OF SUBJECT
NEGRO Ss
WHITE Ss

The large number of zero responses created a concern over the validity of the assumptions of the statistical model associated with the use of an analysis of variance. Therefore a series of chi square tests were computed to investigate the effects of; characteristics of S, characteristics of M and exposure trials. None of the tests yielded significant effects.

TABLE 6.—Subjects who did not emit imitative verbal responses

Subject	Number	Percentage
Negro Females	49	51
Negro Males	58	60
White Females	61	64
White Males	45	47
Total	213	
Total possibilities	384	

Motor imitation

An analysis of variance, identical with the one performed for the verbal imitation was accomplished on the frequencies of imitative motor responses and is summarized in Table 7. This analysis yielded a significant race of S effect beyond the .01 confidence level. Negro Ss imitated more motor behaviors than white Ss. The effect is graphically depicted in Fig. 2. A significant race of S by team of model effect was also found. Inspection of Fig. 3 revealed that the results were an indication that response variability decreased when the racial characteristics of S and M were the same. An interaction between race of S, sex of M and exposure trials was also

TABLE 7.—Analysis of variance of motor imitation

	Source	df	MS	F
Between	S Sub. Sex	1	448.5026	2.776
	R Sub. Race	1	2048.8776	12.683 **
	M Mod. Sex	1	143.8151	.8902
	N Mod. Race	1	211.5234	1.3094
	T Teams	8	270.5911	1.6750
	SR	1	306.3776	1.8966
	SM	1	32.0859	.1986
	RM	1	93.0234	.5758
	SN	1	11.6901	.0723
	RN	1	107.3151	.6643
	MN	1	47.4609	.2938
	SRM	1	3.9609	.0245
	SRN	1	22.5234	.1394
	SMN	1	4.8151	.0298
	RMN	1	59.3776	.3675
	ST	8	109.8359	.6799
	RT	8	366.1172	2.2660*
	SRMN	1	76.1484	.4713
	SRT	8	121.0807	.7495
	error	48	161.5391	
Within	E. Trial	3	19.8915	.1584
	SE	3	29.0026	.2309
	RE	3	46.0720	.3669
	ME	3	24.7040	.1967
	NE	3	80.5373	.6413
	SRE	3	78.1415	.6223
	SME	3	282.4609	2.2490
	RME	3	528.0095	4.2050**
	SNE	3	198.0512	1.5772
	RNE	3	132.0651	1.0517
	MNE	3	80.1276	.6381
	TE	24	78.6432	.6263
	SRME	3	118.9054	.9469
	SRNE	3	276.6484	2.2031
	SMNE	3	368.3845	2.9337*
	RMNE	3	107.5304	.8563
	STE	24	134.6102	1.0720
	RTE	24	115.5859	.9205
	SRMNE	3	63.1207	.5026
	SRTE	24	176.6884	1.4071
	error	144	125.5668	

*$P < .05$

**$p < .01$

Fig. 2 Mean number imitative motor responses: race of S effect

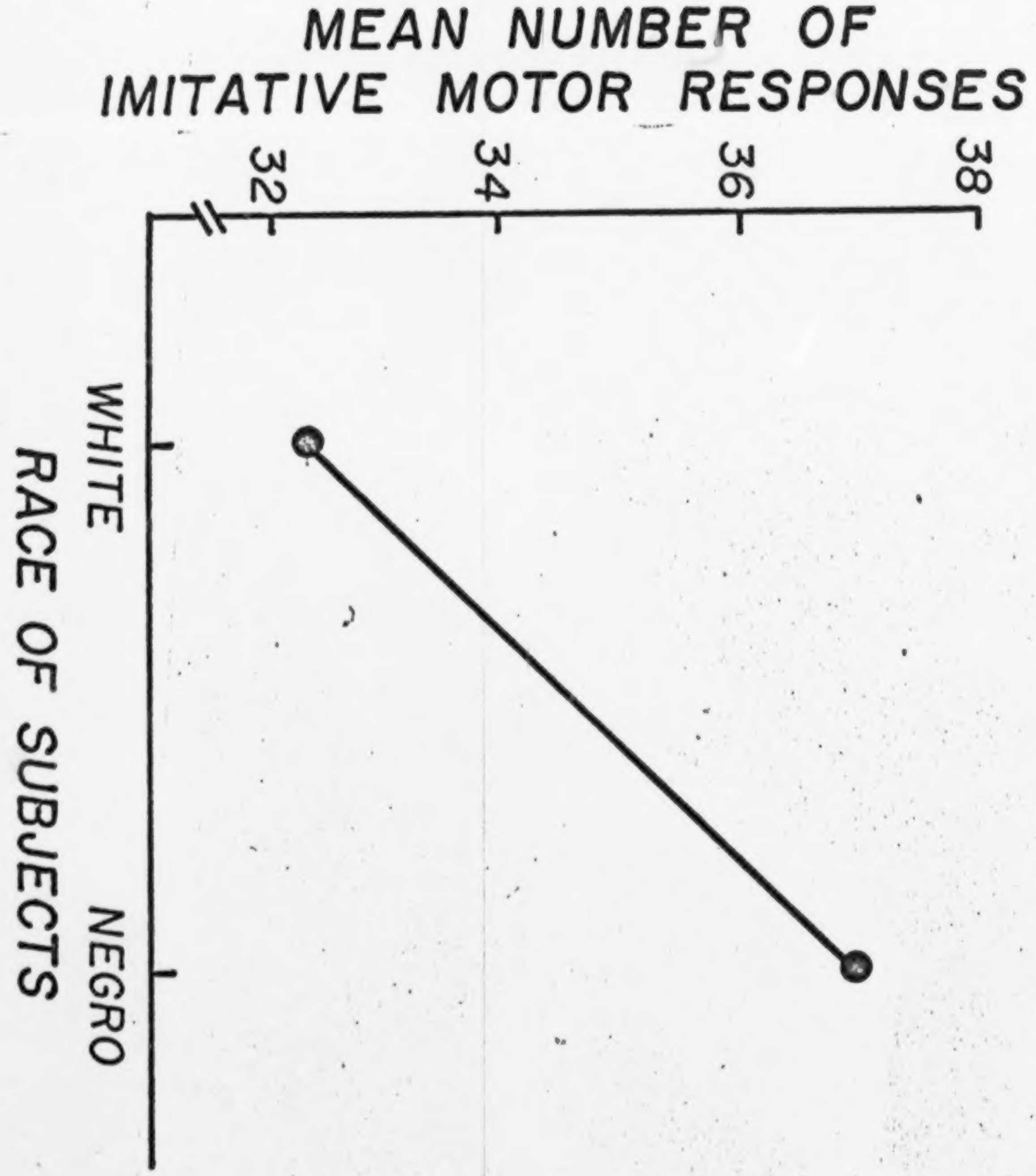
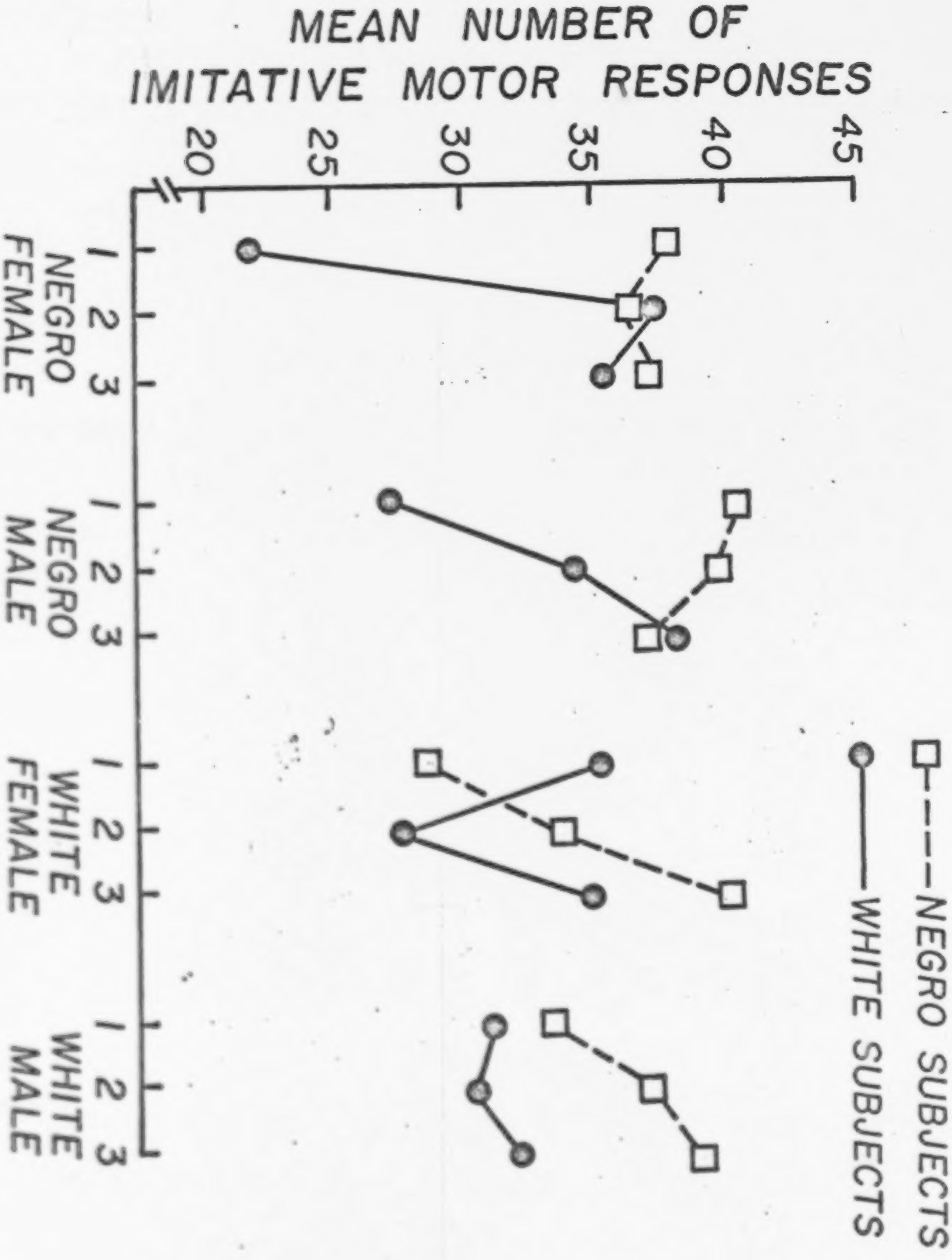

MEAN NUMBER OF IMITATIVE MOTOR RESPONSES
32
34
36
38
WHITE
NEGRO
RACE OF SUBJECTS

Fig. 3. Mean number of imitative motor response: race of *S* x team of adult interaction.


MEAN NUMBER OF IMITATIVE MOTOR RESPONSES
45
40
35
30
25
20
NEGRO SUBJECTS
WHITE SUBJECTS
1 2 3
NEGRO FEMALE
1 2 3
NEGRO MALE
1 2 3
WHITE FEMALE
1 2 3
WHITE MALE
TEAMS BY MODEL CHARACTERISTICS

found to be significant beyond the .01 confidence level. This suggests that different sexed Ms differentially affected the amounts of imitative motor responding on different trials with different raced subjects. In addition, there was a four way interaction between sex of S, sex and race of M and exposure trials.

Total imitation

An analysis of variance was performed on total numbers of imitative responses and is summarized in Table 8. The significant main effects and interactions were similar to those reported for motor imitation. This was to be expected in light of the fact that relatively more motor responses were emitted and therefore contributed a larger portion of the variance to the total imitation scores.

Pellet Dropping

The correlation between the two different pellet dropping sessions was .899. This suggested that the measures were being affected in the same way by the same independent variables.

Comparisons of NR (responding with verbal instructions) sessions, with adjacent R (responding with verbal instructions and verbal approval) sessions were performed to determine whether verbal approval did in fact produce a reinforcement effect. In Table 9 are summaries of chi square tests between each adjacent R and NR period. All tests were significant beyond the .01 confidence level, indicating that reinforcement effects did result whenever verbal approval was mediated.

Two analyses of variance were accomplished for the pellet dropping data, one each for NR and R. The independent variables under investigation in all cases were: sex of S, race of S, sex of adult, race of adult, team effects (differential effects of an adult when compared to other adults with the same sex and race characteristics) and exposure trials.

Pellet dropping during NR

A summary of the results of the analysis of variance are reported in Table 10. There were significant main effects beyond the .01 level for: sex of S. sex of adult and race of adult variables.

TABLE 8.—Analysis of variance of total imitation

	Source	df	MS	F
Between	S Sub. Sex	1	640.6667	2.0130
	R Sub. Race	1	2583.3750	8.1180**
	M Mod. Sex	1	98.0104	.3079
	N Mod. Race	1	68.3437	.2147
	T Teams	8	630.8854	1.9820
	SR	1	37.5000	.1178
	SM	1	123.7604	.3889
	RM	1	106.2604	.3339
	SN	1	33.8437	.1063
	RN	1	82.5104	.2592
	MN	1	.3750	.0012
	SRM	1	86.2604	.2710
	SRN	1	61.7604	.1940
	SMN	1	7.0417	.0221
	RMN	1	7.0417	.0221
	ST	8	155.4687	.4885
	RT	8	553.4531	1.6763
	SRMN	1	3.3750	.0106
	SRT	8	182.6302	.5739
	error	48	318.2187	
Within	E. Trial	3	201.9375	.6688
	SE	3	41.3125	.1368
	RE	3	66.3542	.2197
	ME	3	72.4340	.2399
	NE	3	167.1979	.5538
	SRE	3	170.1458	.5635
	SME	3	480.9062	1.5028
	RME	3	875.2396	2.8990*
	SNE	3	523.4757	1.7339
	RNE	3	116.9757	.3874
	MNE	3	338.5903	1.1215
	TE	24	115.5347	.3826
	SRME	3	201.3229	.6668
	SRNE	3	483.9201	1.6028
	SMNE	3	798.5069	2.6440
	RMNE	3	49.6736	.1645
	STE	24	276.9306	.9172
	RTE	24	275.1441	.9113
	SRMNE	3	90.1736	.2986
	SRTE	24	333.6615	1.1051
	error	144	301.9062	

*P <.05

**P <.01

TABLE 9.—Chi-square comparisons of NR and R frequency of reinforcement effects

Comparisons		Ss exhibiting reinforcement effects	Ss not exhibiting reinforcement effects	Total	X^2
NR1 and R1	O[a]	280	104	384	80.6**
	E[b]	192	192	384	
NR2 and R1	O	219	165	384	7.6**
	E	192	192	384	
NR2 and R2	O	239	145	384	22.4**
	E	192	192	384	
NR3 and R2	O	231	153	384	15.8**
	E	192	192	384	

**P .01

[a] O-Observed

[b] E-Expected

TABLE 10.—Analysis of variance of pellet dropping under reinforcement

	Source	df	MS	F
Between	S Sub. Sex	1	16907.0417	9.3600**
	R Sub. Race	1	73.5000	.0406
	M Mod. Sex	1	23751.0417	13.1490**
	N Mod. Race	1	63140.0417	34.9560**
	T Teams	8	11337.0234	6.2760**
	SR	1	10901.3437	6.0350*
	SM	1	263.3437	.1457
	RM	1	256,7604	.1421
	SN	1	931.2604	.5155
	RN	1	1197.0937	.6627
	MN	1	18509.2604	10.2470**
	SRM	1	54.0000	.0298
	SRN	1	1.0417	.0005
	SMN	1	92.0417	.0509
	RMN	1	35.0417	.0194
	ST	8	2216.8203	1.2272
	RT	8	2451.2786	1.3570
	SRMN	1	213.0104	.1179
	SRT	8	1683.3880	.9319
	error	48	1806.2708	
Within	E. Trial	3	2797.0937	1.1797
	SE	3	958.5694	.4042
	RE	3	476.5278	.2009
	ME	3	4473.4583	1.8867
	NE	3	1959.4583	.9267
	SRE	3	1638.6493	.6911
	SME	3	1257.5382	.5305
	RME	3	5112.4549	2.1560
	SNE	3	2348.7604	.9906
	RNE	3	736.2882	.3105
	MNE	3	1827.9271	.7709
	TE	24	2712.9609	1.1442
	SRME	3	711.2222	.2999
	SRNE	3	1139.3472	.4805
	SMNE	3	4511.1528	1.9020
	RMNE	3	1016.4028	.4286
	STE	24	1947.0078	.8211
	RTE	24	2242.6189	.9458
	SRMNE	3	1464.3993	.6176
	SRTE	24	1765.2977	.7745
	error	144	2370.9931	

*P <.05

**P <.01

Female Ss were more responsive than males. Female adults elicited more responsiveness than males while Negro adults were more effective than whites. The above results are pictorally represented on Figs. 4, 5, and 6 respectively. A significant sex by race of S interaction beyond the .01 level was also found. Inspection of Fig. 7 indicated that white females emitted more responses than Negro females but Negro males responded more than white males. Also significant beyond the .01 confidence level was an interaction between sex and race of the adult. Negro females elicited more responses than Negro males while no significant differences were reported for white male and female adults. These data are graphically presented in Fig. 8.

A team effect significant beyond the .01 level was also reported. A multiple range test and Fig. 9 indicated that adults, representing at least one of the three replications of each experimenter characteristic, elicited differential rates of responding from Ss.

Pellet dropping during R

Data summarized in Table 11 generally reflected the significant effects of the same independent variables reported for NR. There were significant main effects beyond the .01 level for: sex of S, sex of adult and race of adult variables. Female Ss were more responsive than males. Female adults elicited more responsiveness than males while Negro adults were more effective than whites. These results are graphically reported in Figs. 10, 11, and 12 respectively. A significant sex by race of S interaction beyond the .05 level was also found; white females emitted more responses than Negro females but Negro males responded more than white males. This interaction is represented in Fig. 13.

A team effect significant beyond the .01 level was reported. Fig. 14 and a multiple range test indicated that all characteristics with the exception of the Negro females had adults who elicited differential rates of responding from Ss. The only difference in effects of independent variables for NR and R conditions was the sex and race of the adult interaction reported during NR. The initial rates of responding elicited by Negro females during this condition were sufficiently high to serve as a ceiling for the Ss, thereby preventing a proportional increase during R.

Fig. 4. Mean rates of responding NR: sex of S effect.

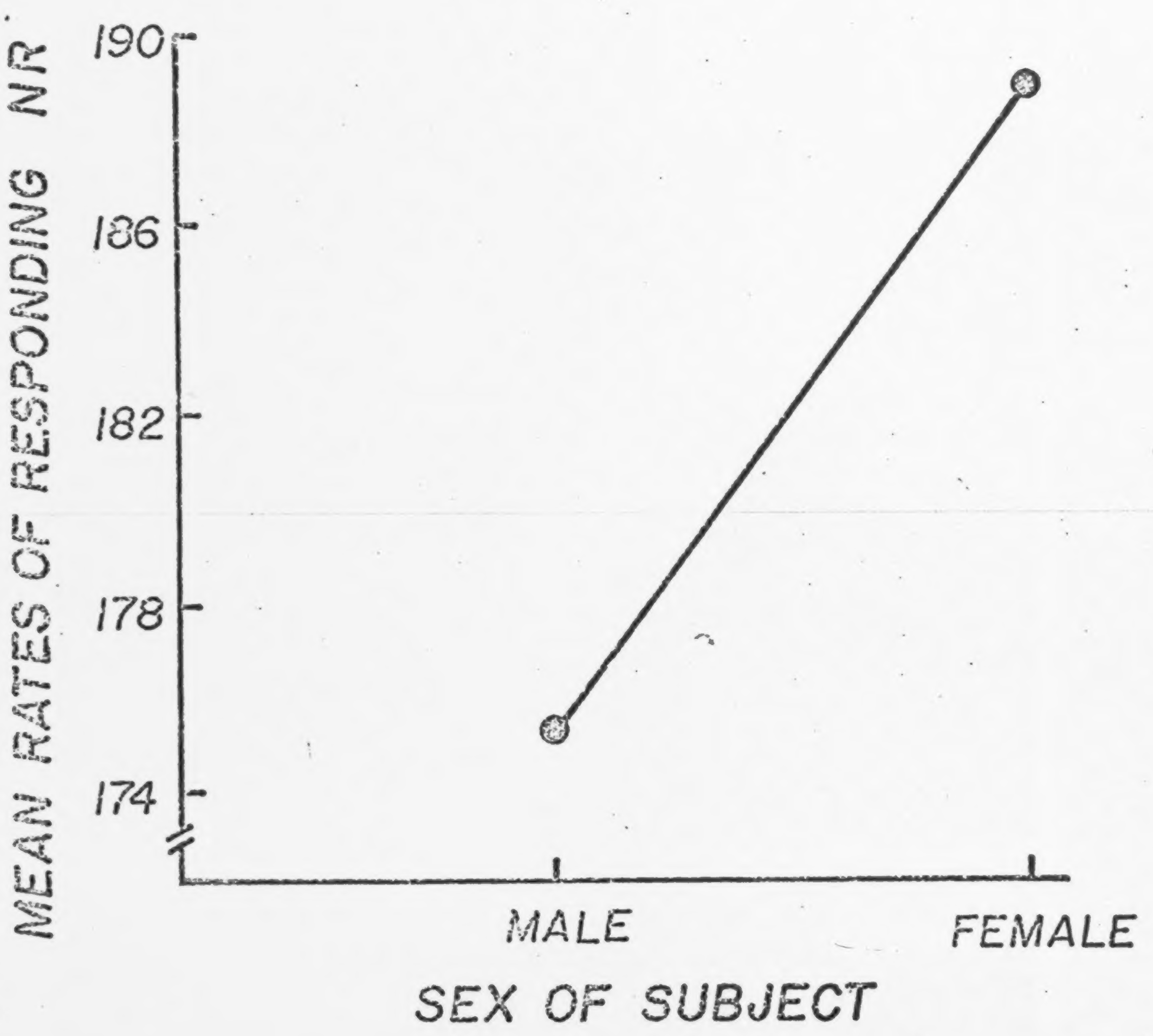

MEAN RATES OF RESPONDING NR
190
186
182
178
174
MALE
FEMALE
SEX OF SUBJECT

Fig. 5. Mean rates of responding NR: sex of adult effect.

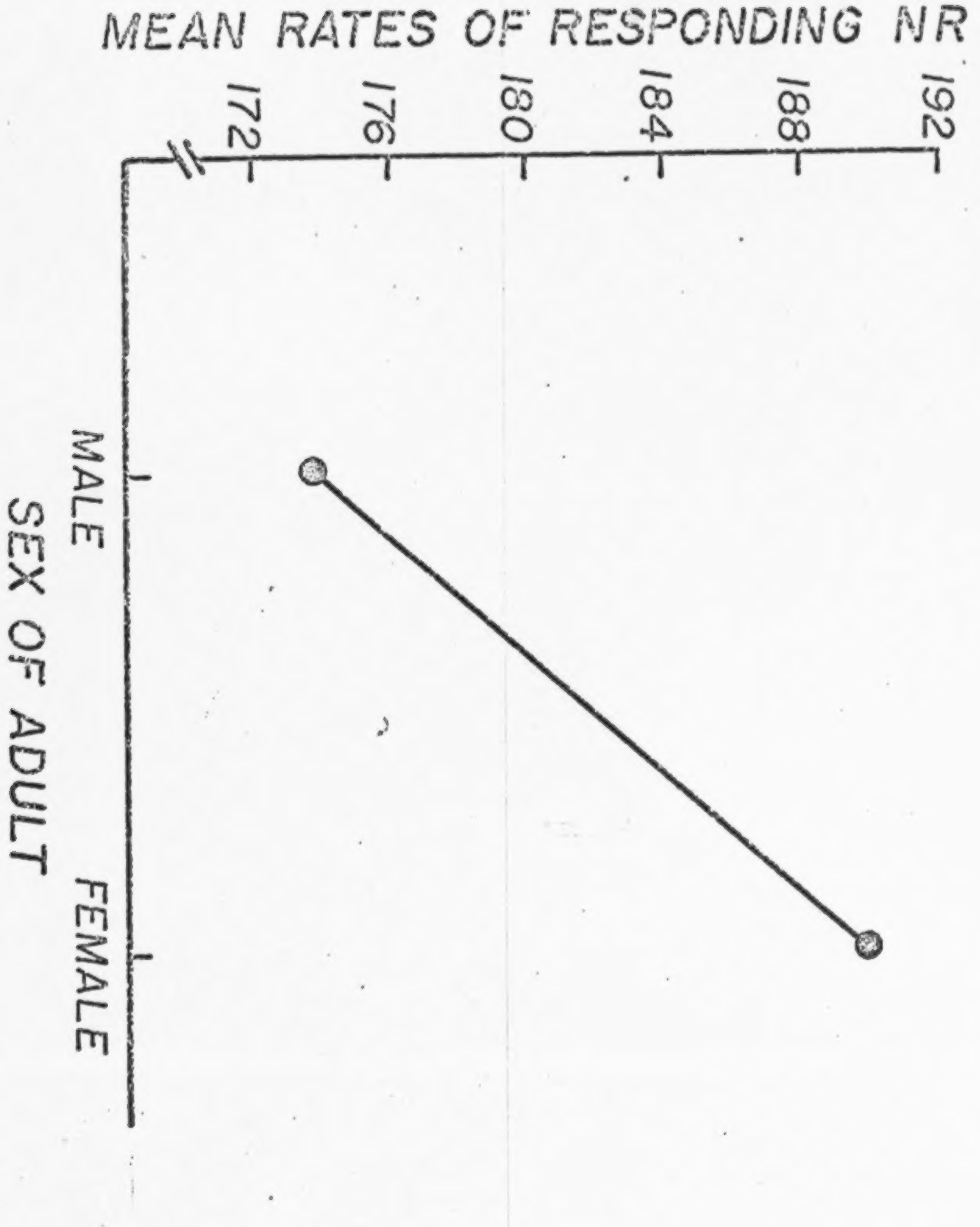

MEAN RATES OF RESPONDING NR
172
176
180
184
188
192
MALE
FEMALE
SEX OF ADULT

Fig. 6. Mean rates of responding NR: race of adult effect.

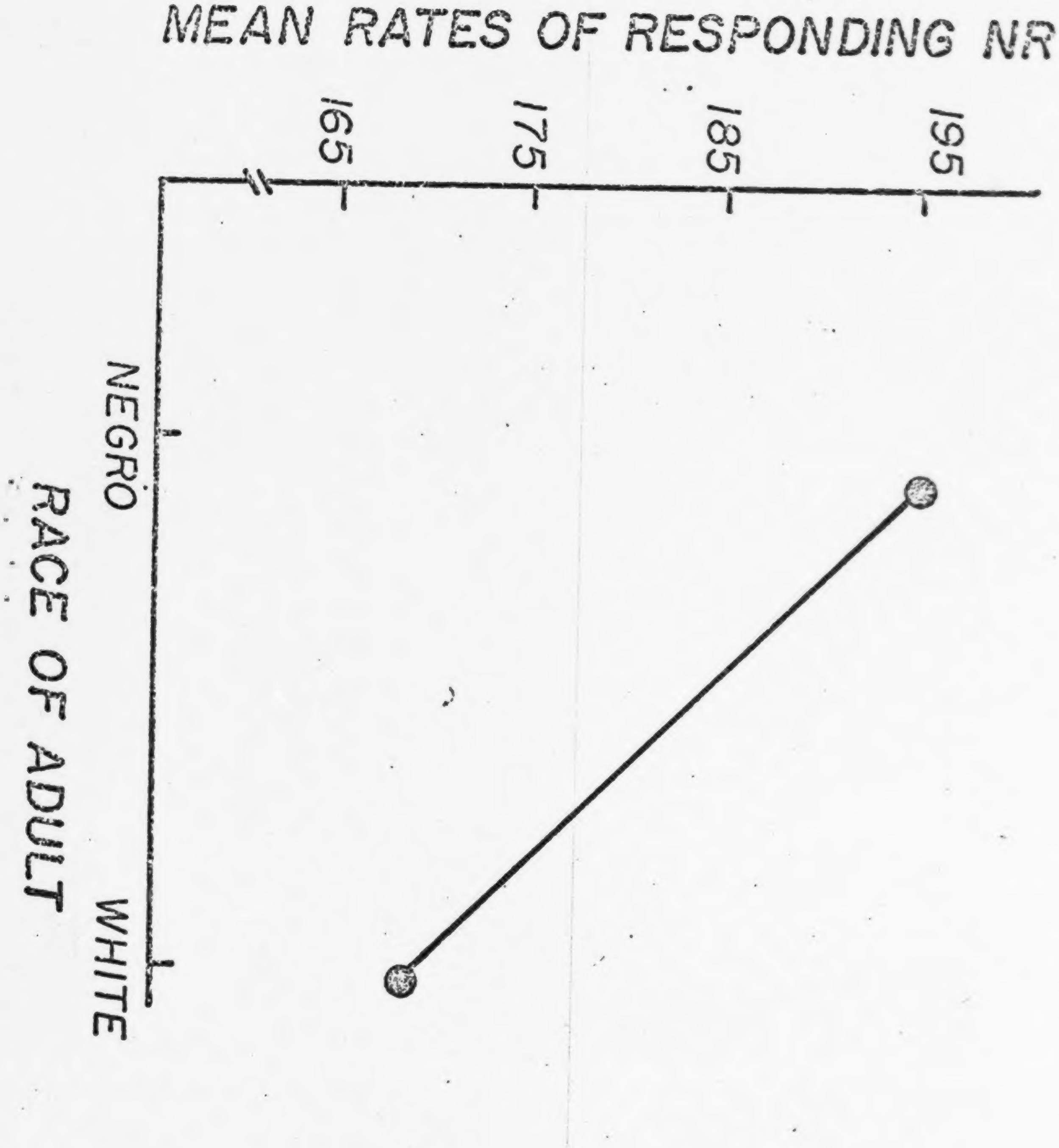

MEAN RATES OF RESPONDING NR
165
175
185
195
NEGRO
WHITE
RACE OF ADULT

Fig. 7. Mean rates of responding HR: race x sex of S interaction.

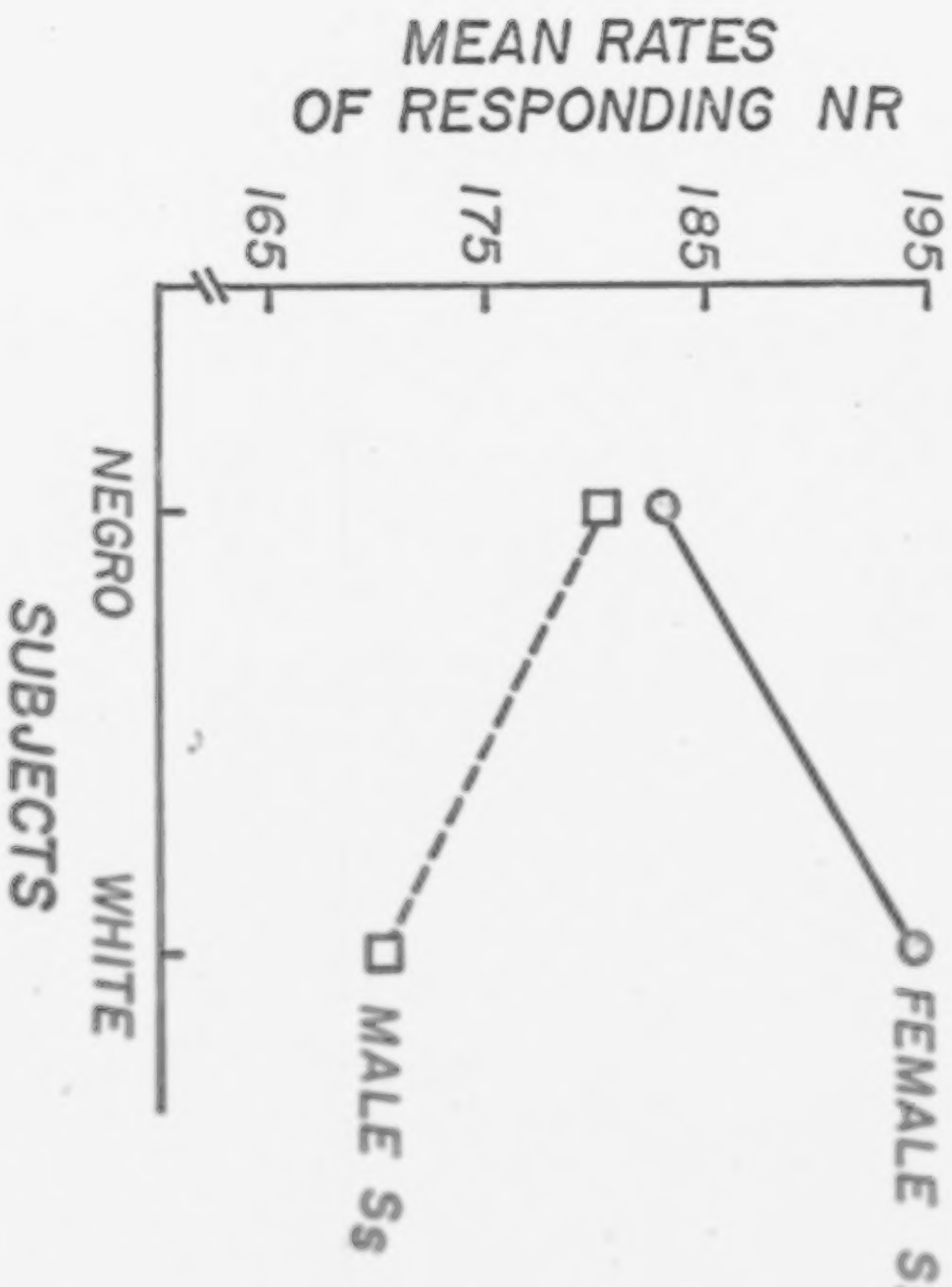

MEAN RATES
OF RESPONDING NR
165
175
185
195
NEGRO
WHITE
SUBJECTS
FEMALE Ss
MALE Ss

Fig. 8. Mean rates of responding NR: race x sex of adult interaction.

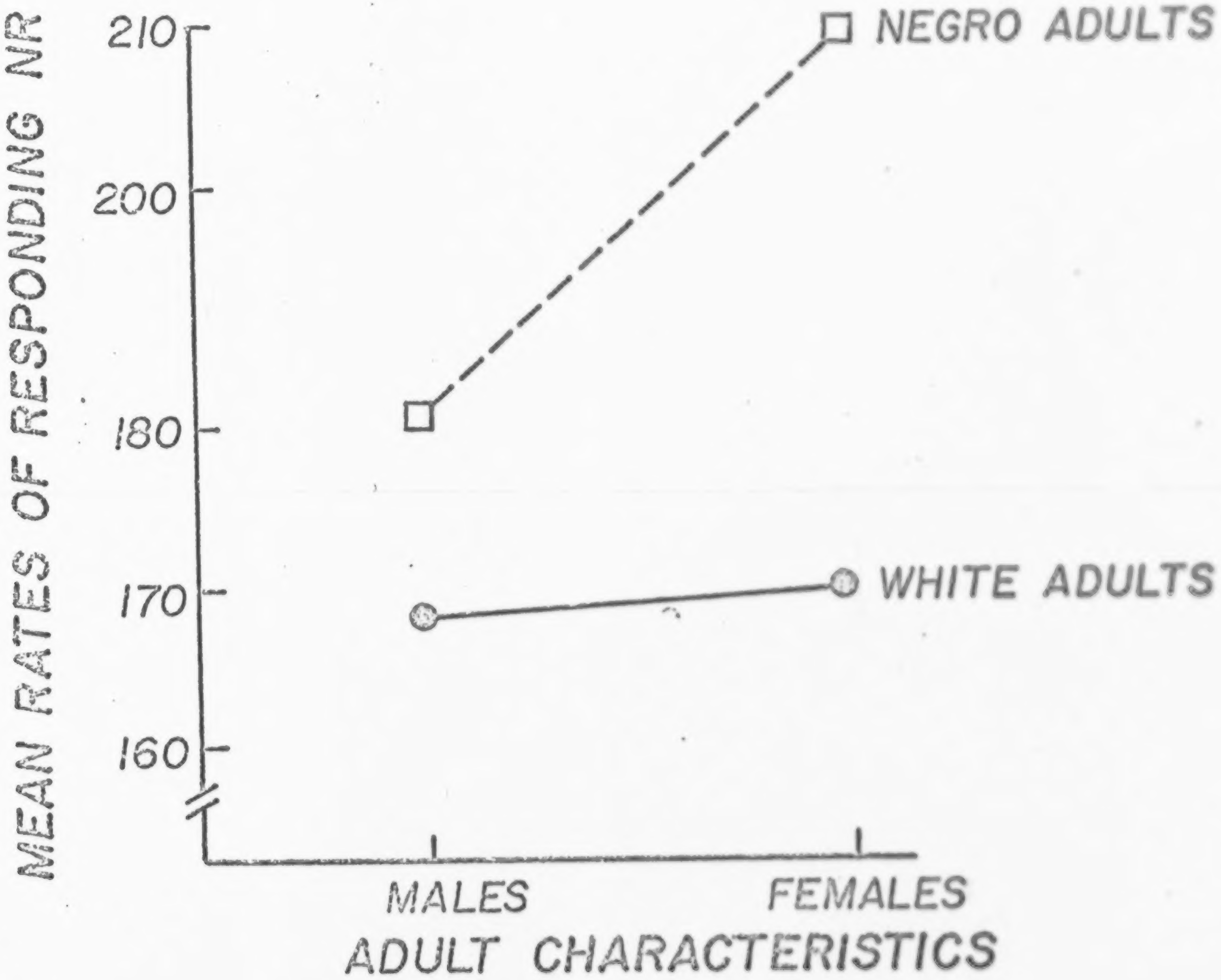

MEAN RATES OF RESPONDING NR
210
200
180
170
160
NEGRO ADULTS
WHITE ADULTS
MALES
FEMALES
ADULT CHARACTERISTICS

Fig. 9. Mean rates of responding NR: team effect.

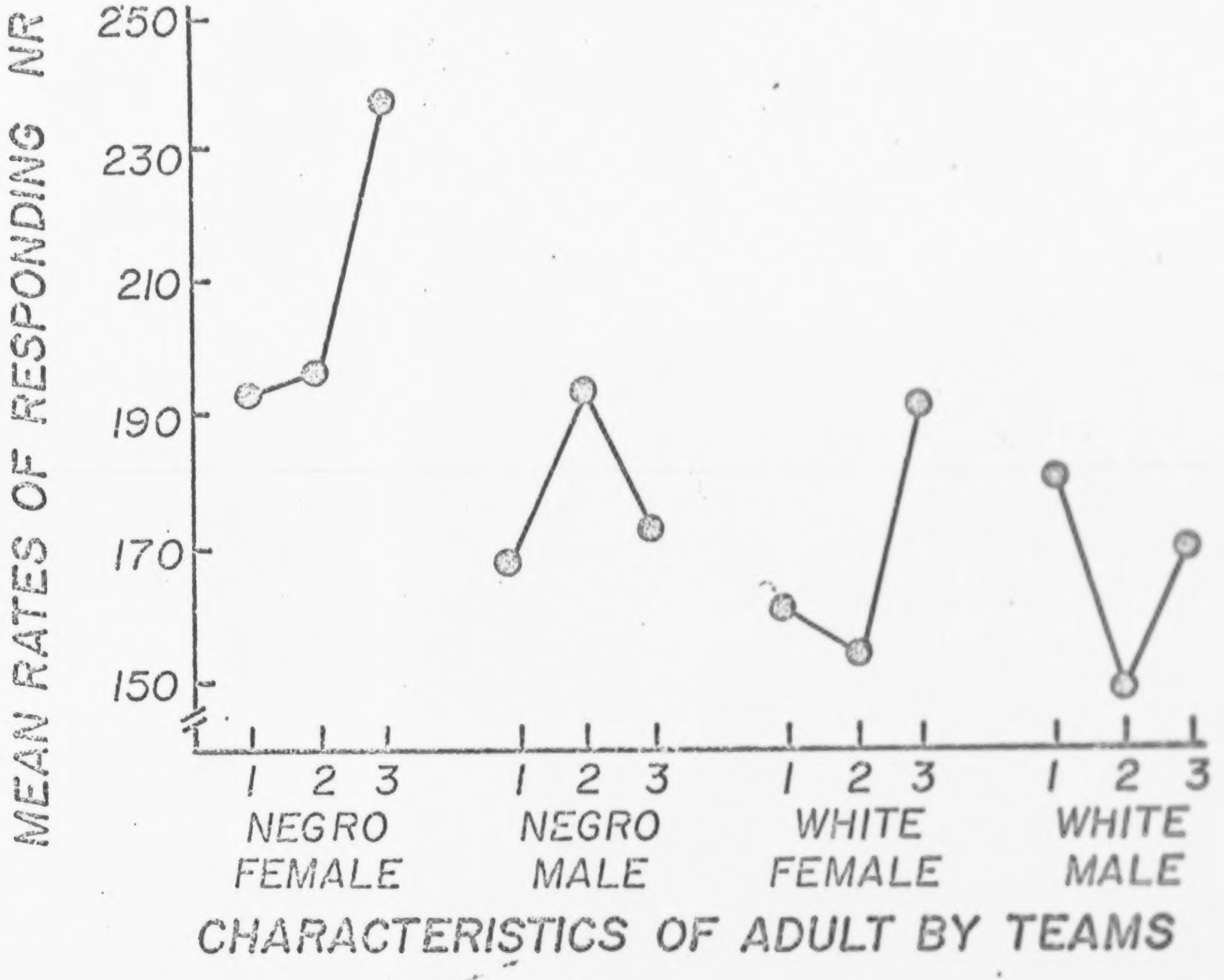

MEAN RATES OF RESPONDING NR
250
230
210
190
170
150
1 2 3
NEGRO FEMALE
1 2 3
NEGRO MALE
1 2 3
WHITE FEMALE
1 2 3
WHITE MALE
CHARACTERISTICS OF ADULT BY TEAMS

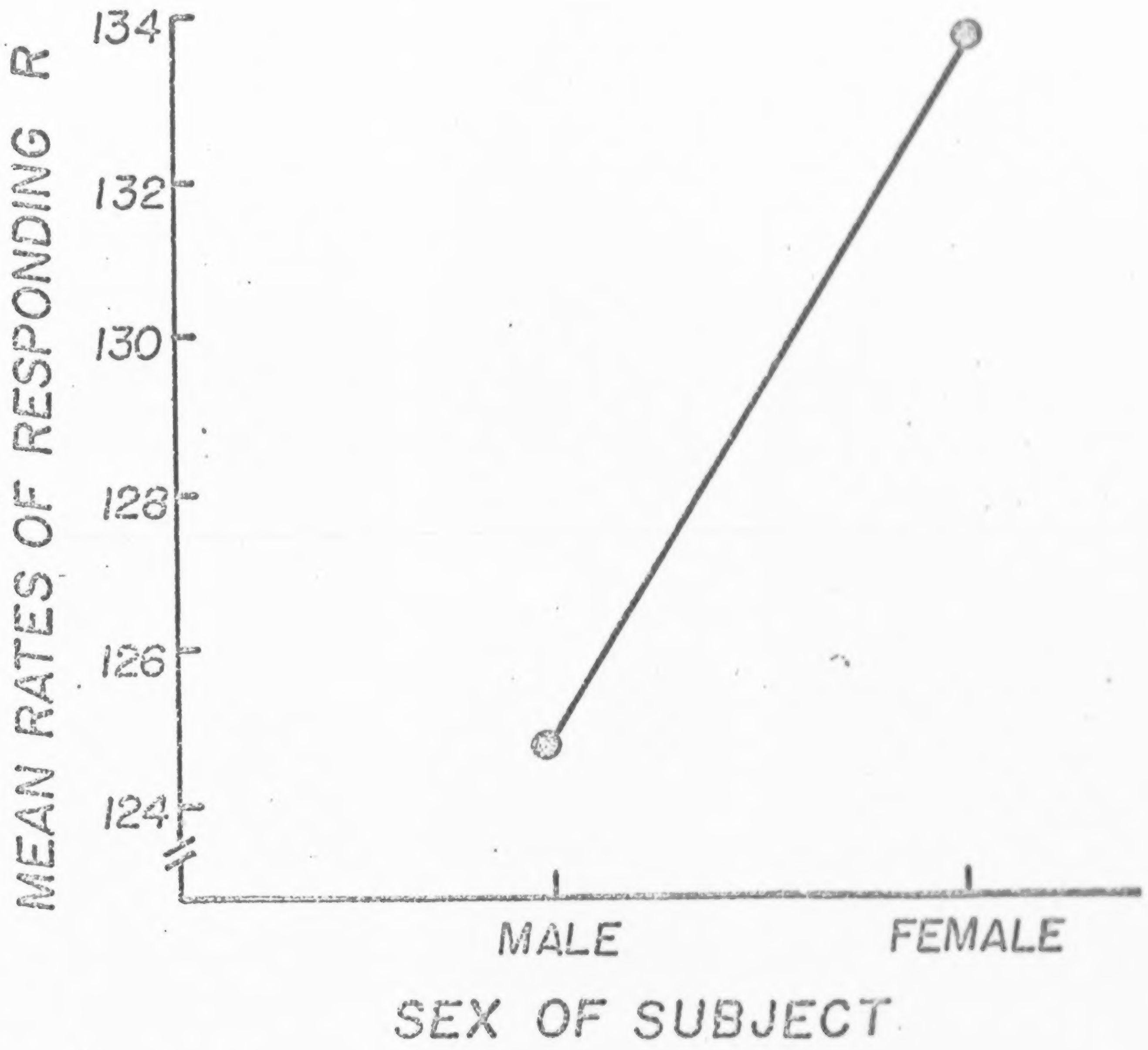
TABLE 11.—Analysis of variance of pellet dropping with verbal approval

	Source	df	MS	F
Between	S Sub. Sex	1	8195.5104	9.2710**
	R Sub. Race	1	315.3750	.3781
	M Mod. Sex	1	7508.3437	8.4940**
	N Mod. Race	1	22816.6667	25.8120**
	T Teams	8	3898.0130	4.4090**
	SR	1	4845.0417	5.4810
	SM	1	207.0937	.2483
	RM	1	384.0000	.4604
	SN	1	145.0417	.1739
	RN	1	1033.5937	1.1690
	MN	1	1457.0417	1.6480
	SRM	1	20.1667	.0241
	SRN	1	147.5104	.1768
	SMN	1	10.6667	.0127
	RMN	1	106.2604	.1274
	ST	8	619.0547	.7423
	RT	8	1213.8776	1.4555
	SRMN	1	1183.0104	1.4185
	SRT	8	1211.5339	1.4527
	error	48	833.9479	
Within	E. Trial	3	825.8437	.7293
	SE	3	652.7049	.5764
	RE	3	261.6806	.2311
	ME	3	891.7049	.7875
	NE	3	999.0833	.8823
	SRE	3	668.3750	.5903
	SME	3	1156.4271	1.0213
	RME	3	1437.8889	1.2699
	SNE	3	2138.2361	1.8880
	RNE	3	302.3993	.2670
	MNE	3	1242.6806	1.0975
	TE	24	1555.2630	1.3736
	SRME	3	819.9167	.7241
	SRNE	3	264.5382	.2336
	SMNE	3	2811.9722	2.4835
	RMNE	3	652.3437	.5761
	STE	24	941.9366	.8319
	RTE	24	1178.3151	1.0406
	SRMNE	3	1404.9826	1.2408
	SRTE	24	743.1172	.6563
	error	144	1132.2396	

*$P < .05$

**$P \leq .01$

Fig. 10. Mean rates of responding R: sex of S effect.



MEAN RATES OF RESPONDING R
134
132
130
128
126
124
MALE
FEMALE
SEX OF SUBJECT

Fig. 11. Mean rates of responding R: sex of adult effect.

55

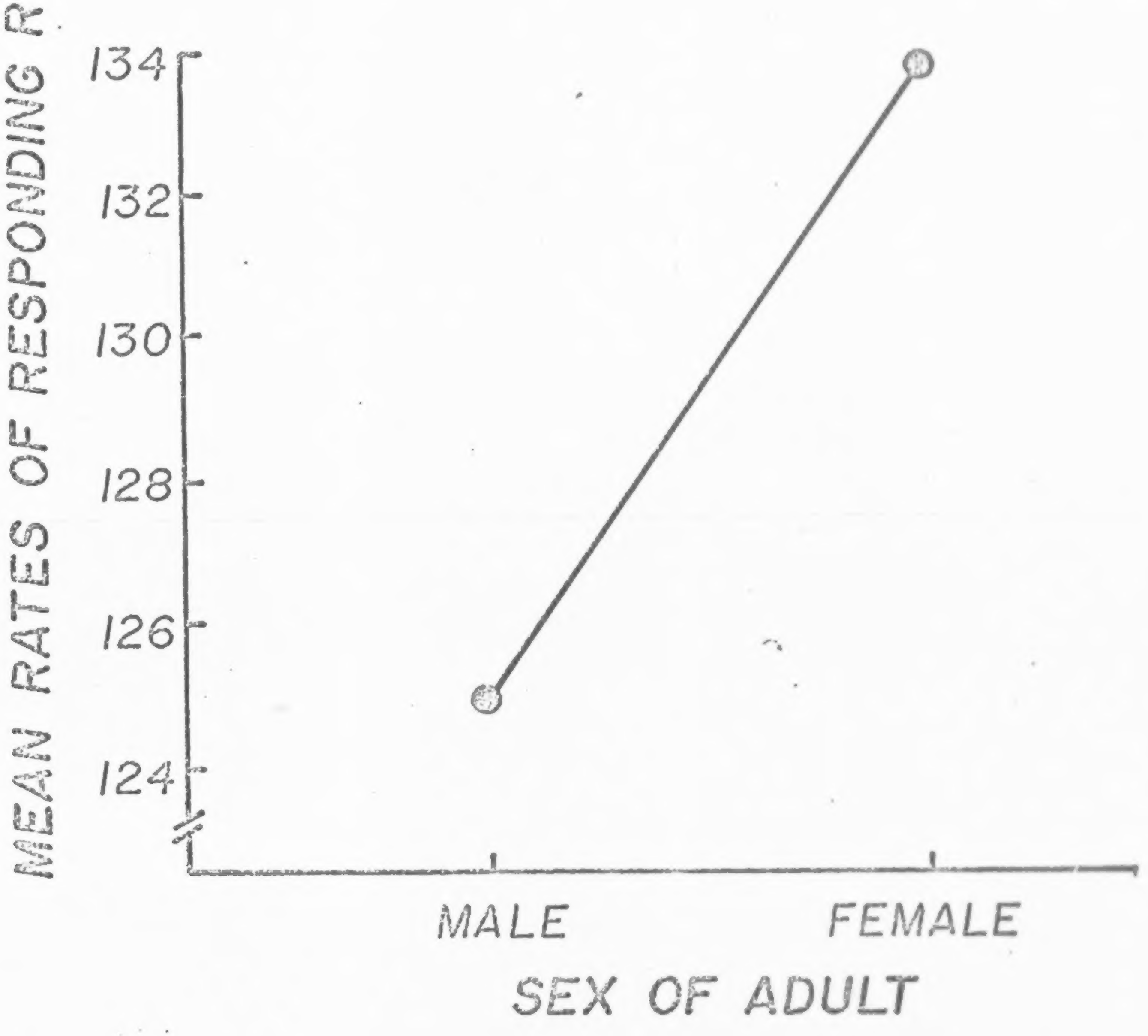

MEAN RATES OF RESPONDING R
134
132
130
128
126
124
MALE
FEMALE
SEX OF ADULT

Fig. 12. Mean rates of responding R: race of adult effect.

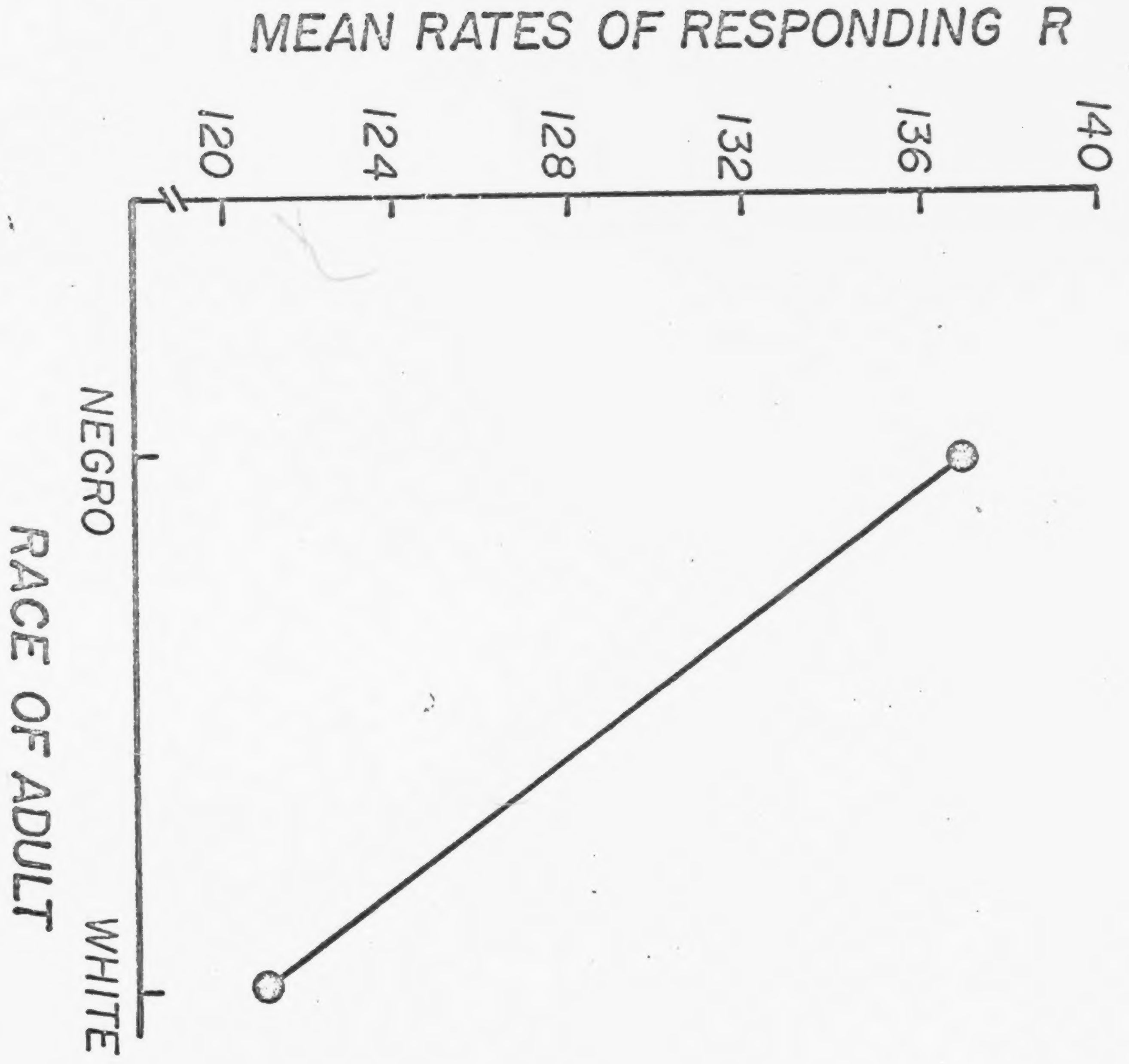

MEAN RATES OF RESPONDING R
120
124
128
132
136
140
NEGRO
WHITE
RACE OF ADULT

Fig. 13. Mean rates of responding R: sex x race of S interaction.

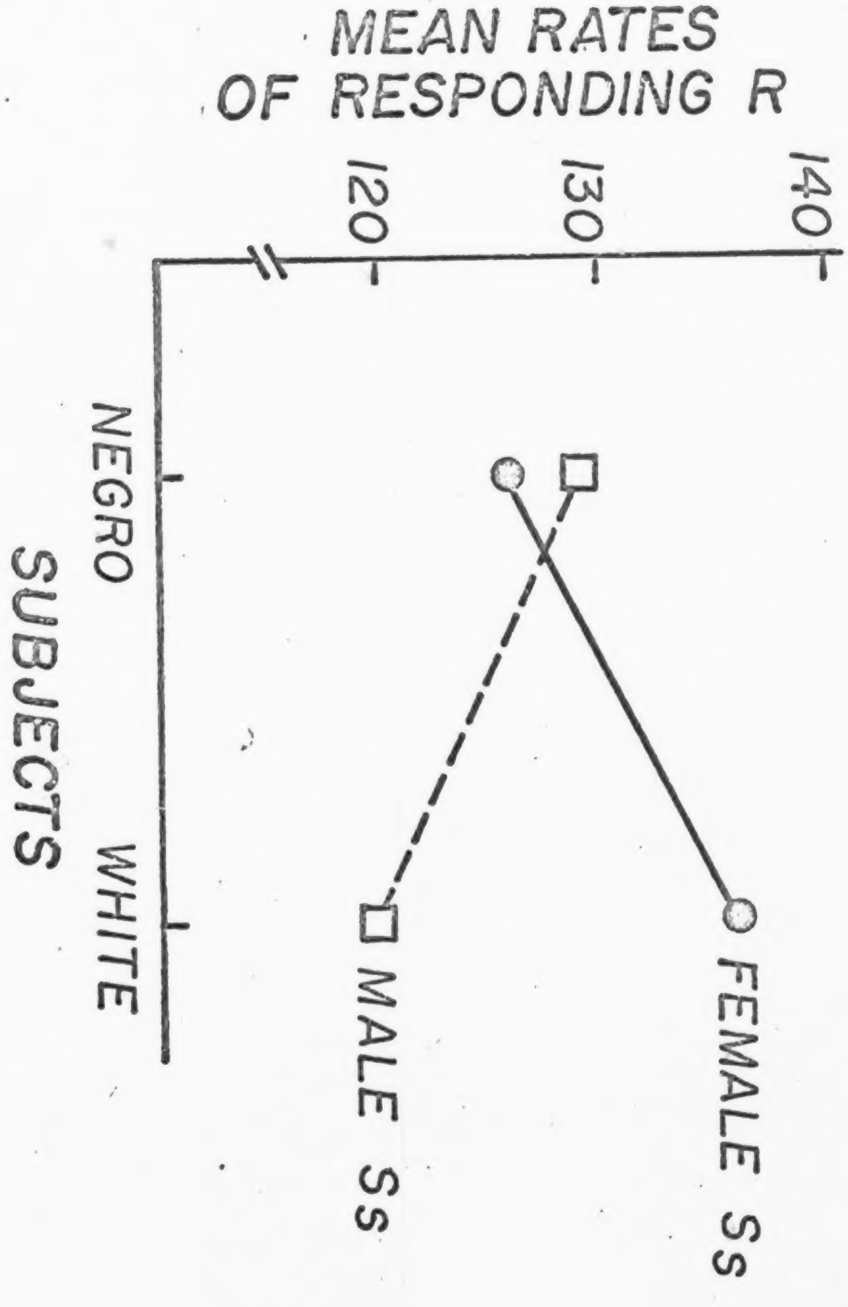
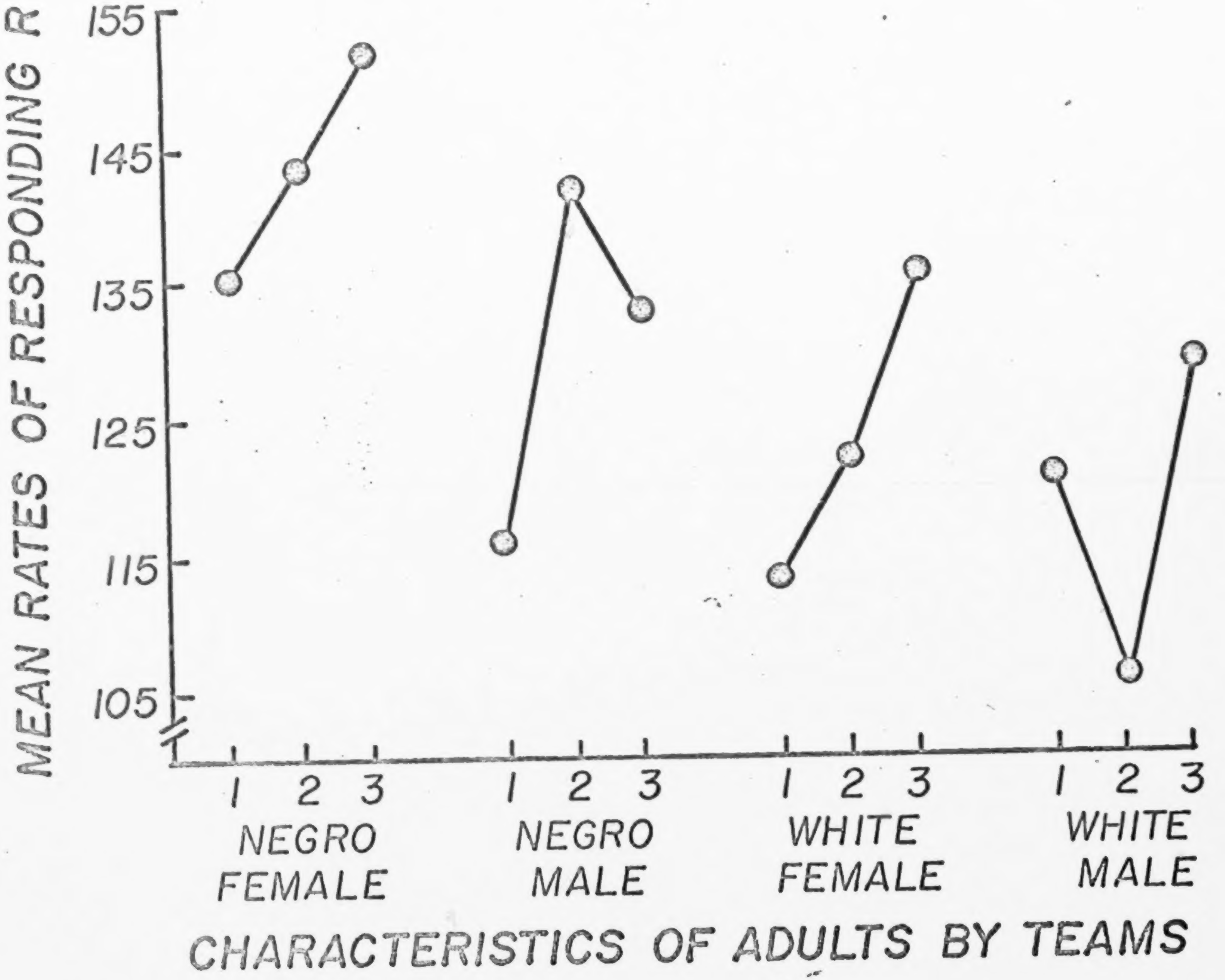

MEAN RATES OF RESPONDING R
140
130
120
NEGRO
WHITE
SUBJECTS
FEMALE Ss
MALE Ss

Fig. 14. Mean rates of responding R: team effect.


MEAN RATES OF RESPONDING R
155
145
135
125
115
105
1 2 3
NEGRO FEMALE
1 2 3
NEGRO MALE
1 2 3
WHITE FEMALE
1 2 3
WHITE MALE
CHARACTERISTICS OF ADULTS BY TEAMS

Preferences for Adult Characteristics

The data analyzed for this dependent measure were the proportions of candies out of a possible thirty given to each adult in a series of paired comparisons by each S. Since these data were in percentages, an arc sine transformation was made. A three way analysis of variance investigating the effects of the characteristics of Ss and the characteristics of the interviewer on choices for particular adults was attempted. The same analysis also yielded data bearing on the relative "likability" of the adult characteristics with respect to each other. The data are summarized in Table 12. The main effects variable, reflecting relative preferences for each of the adults was significant beyond the .01 level. A multiple range test and Fig. 15 revealed that the white females were preferred most while the Negro males were preferred least. Comparisons of relative degrees of likability between the Negro females and the white males were not significant. In addition, a significant subject by choice of adult interaction ($P < .01$) was found. Inspection of Fig. 16 indicates that with the exception of choices for white females all but one group of subjects preferred their own characteristics best. The Negro males were the only group to differ from this pattern of responding.

Relationships Between the Various Measures of Adult Influence

Pellet dropping and imitative measures

Pearson product moment correlations coefficients were computed to determine the relationships between the various pellet dropping and imitative measures. These coefficients are summarized in Table 13. All of the imitative measures were significantly, but modestly related to the two pellet dropping measures. The low significant correlations partially support Patterson's contention that the two measures of "responsiveness to social stimuli" were related. However, it appears that the factors under investigation in this study were differentially affecting the two measures.

TABLE 12.—Analysis of variance of preferences for adult characteristics (arc sine transformation)

Source	df	MS	F
Between			
Subjects (S)	3	.0015	.7143
Interviewers (I)	3	.0039	1.8570
SI	9	.0019	.9050
error	80	.0021	
Within			
Adult Characteristics (A)	3	.6926	15.089**
AI	9	.0479	1.044
AS	9	.1355	2.951**
SIA	27	.0343	.747
error	240	.0459	

*$P < .05$

**$P < .01$

Fig. 15. Raw preference scores: preferences for characteristics of adult effect.

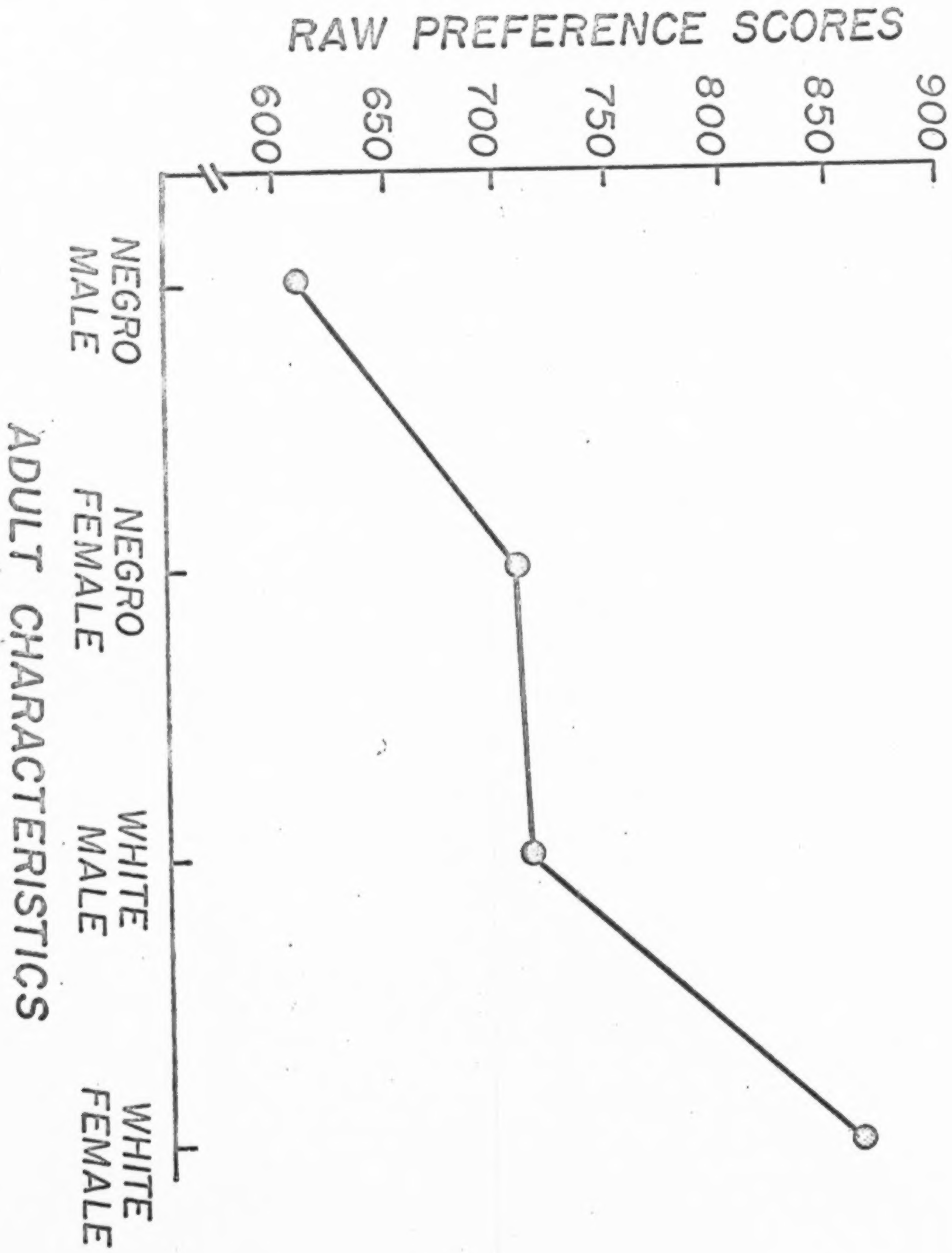

RAW PREFERENCE SCORES
600
650
700
750
800
850
900
NEGRO MALE
NEGRO FEMALE
WHITE MALE
WHITE FEMALE
ADULT CHARACTERISTICS

Fig. 16. Raw preference scores: preferences for characteristics of adult x characteristics of S interaction.

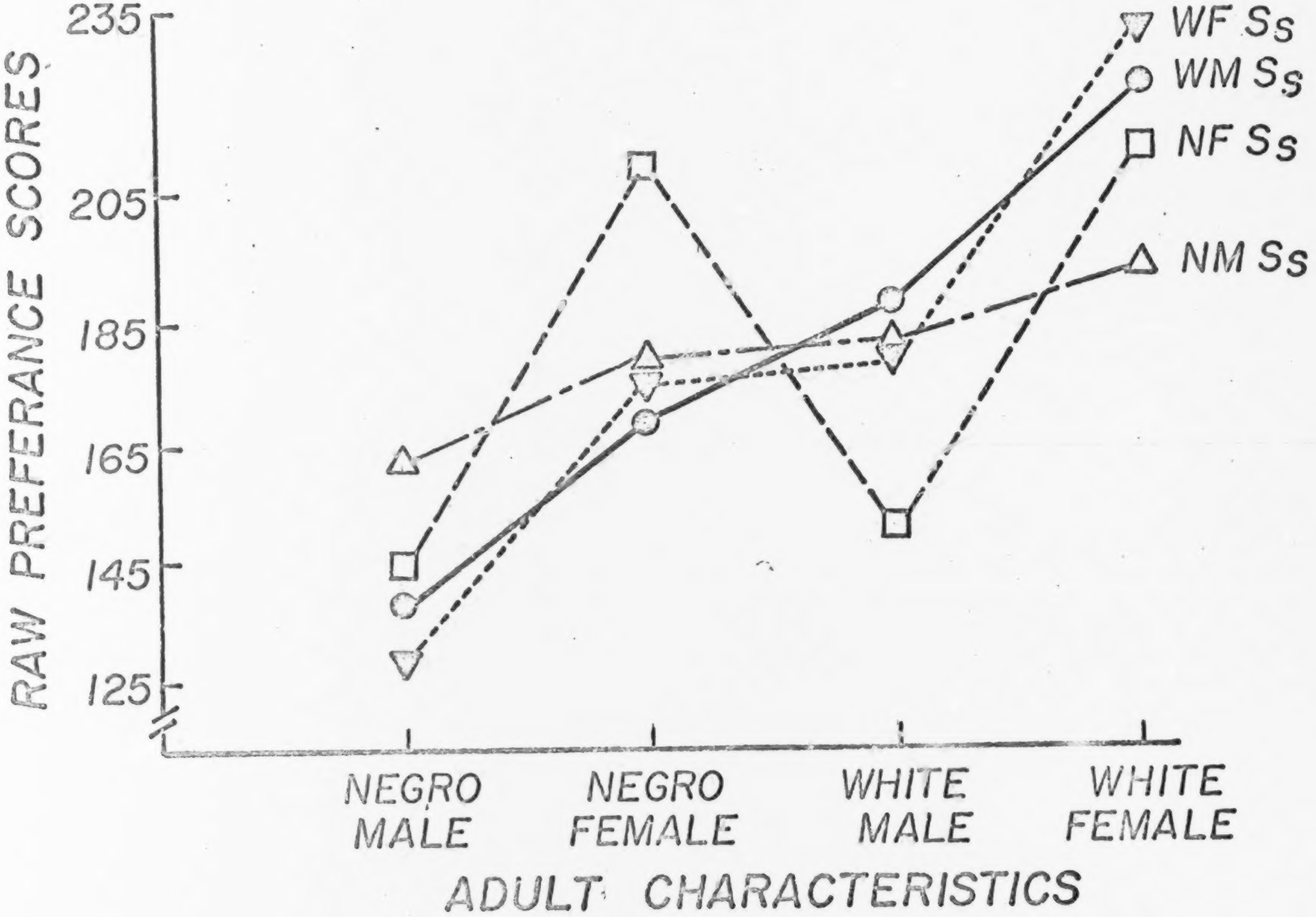

RAW PREFERANCE SCORES
235
205
185
165
145
125
NEGRO MALE
NEGRO FEMALE
WHITE MALE
WHITE FEMALE
ADULT CHARACTERISTICS
WF Ss
WM Ss
NF Ss
NM Ss

TABLE 13.—Pearson product moment correlations between pellet dropping and imitation measures

	Pellet Dropping Measures	
Imitation Measures	NR	R
Verbal Imitation	.159*(174)	.167*(174)
Motor Imitation	.144**(375)	.167**(375)
Total Imitation	.144**(375)	.162**(375)

Numbers in parentheses refer to number of pairs of observations. Discrepancies are due to the deletion of zero levels of responding.

*p $<$.05

**p $<$.01

Preferences for particular adult characteristics and responsiveness to those characteristics

Pearson product moment coefficients were calculated to determine the above relationships and are summarized in Table 14. Twenty coefficients were computed and only one was barely significant beyond the .05 confidence level. These data suggested that a child's preference for a particular adult was not related to his degree of responsiveness on the various measures used in the study.

TABLE 14.—Pearson product moment correlations between preferences for particular adult characteristics and responsiveness to those characteristics

Comparisons	NF	NM	WM	WF
Preferences and Verbal Imitation	.011 (40)	-.182 (36)	-.219 (50)	-.089 (41)
Preference and Motor Imitation	.179 (89)	-.115 (90)	.002 (89)	-.089 (88)
Preference and Total Imitation	.147 (89)	-.111 (90)	-.131 (89)	-.045 (88)
Preferences and Pellet Dropping NR	-.209* (90)	-.136 (90)	.075 (90)	.142 (90)
Preferences and Pellet Dropping R	-.111 (90)	-.143 (90)	.131 (90)	.134 (90)

Numbers in parentheses refer to number of pairs of observations. Discrepancies are due to the deletion of zero levels of responding.

*P $<$ .05

IV. DISCUSSION

The complexity of the data presented in the previous chapter dictates that results be discussed in as systematic a manner as possible. For the sake of consistency and clarity the data will be dealt with in the order adhered to in the results section.

Imitation

Consistently low, and in many cases zero, numbers imitative verbal responses were emitted by many of the children in the study. These results are consistent with a previous study by May and Breyer (1968). They found that lower class Negroes emitted fewer imitative verbal responses than children (both white and Negro) from higher socioeconomic levels. If socioeconomic level were a relevant variable then it would be expected that lowered numbers imitative verbal responses would be produced from children who were included in a Headstart program. It seems tenable therefore, to assume that a relationship between verbal imitation and socioeconomic level does exist. However, the nature of the relationship and the relevance of other factors is still unclear. For example, the relationship may indirectly reflect the language development of Ss involved. There is some support for this in that Dorr (1969) found a significant relationship between scores on the Peabody Picture Vocabulary Test and rates of verbal imitation. This area would seem fruitful for investigation, but should not be attempted before the basic verbal imitation task if revised. Bandura and his colleagues developed the imitation paradigm and responses while working primarily with preschool youngsters representing considerably higher socioeconomic levels. As a result, they did not report problems in relation to lower rates of verbal imitation. The basal levels of responding exhibited by a large group of lower class youngsters indicate that the paradigm, as it stands now, is not sufficiently sensitive to investigate the above relationships adequately.

The single significant effect with the verbal imitation data is difficult to interpret. The result that Negro females emitted more than Negro males and white males more than females reflected the amounts of zero responses emitted by the same S characteristics. This is interpreted to indicate that the results are a function of an inhibiting factor operating on the white females and Negro males. To hypothesize a cause for this effect would be pure speculation.

Effects of the independent variables on motor imitation produced two interesting results. A significant main effect in favor of the Negro youngsters was initially difficult to fathom in light of the fact that May and Breyer (1968) found no significant effects due to race or socioeconomic status on motor imitation. A closer look at the contexts in which the two studies were completed may have accounted for the reported differences. The May and Breyer study was conducted with children who had been home in their own neighborhood for at least two weeks. Furthermore, they were brought in cars to the university laboratory in groups of four to six children. Extra care was made to carefully balance the cars according to race characteristics of the Ss. This is contrasted to the present study which was conducted at the Headstart sites. Though equal numbers of different raced children were randomly selected for participation in the study the overriding proportion of youngsters at Headstart were Negro. In addition, informal interviews with the experimenters and the Headstart teachers revealed that in general the white children were viewed as being more quiet and subdued than the Negro youngsters. This is meant to suggest that contextual factors inherent in the program's structure may have been interacting with the independent variables of concern to produce the observed effects.

Another interesting effect was the race of S by teams within adult characteristics interaction. The results were an indication that response variability was less when the racial characteristics of Ss and adults were the same. In other words, there was a greater liklihood that inconsistent rates of responding would be elicited by teams within an adult characteristic if the Ss and Ms were not matched according to their similar racial characteristics. An explanation of this phenomena should await replication and additional research.

Analyses of total and motor imitation data yielded similar results. This was expected in light of the fact that relatively higher numbers imitative motor responses were emitted and therefore contributed the major portion of the variance for the total imitation scores. These findings were similar to those reported by May and Breyer (1968) and Dorr (1969).

The finding that the same variables had differential effects on motor and verbal imitation has also been reported in other studies (May & Breyer, 1968; and Dorr, 1969) as well as in the present one. It might, therefore, be fruitful to maintain the distinction of verbal and motor imitation as separate classes of imitative responses with the implication that both be subjected to separate statistical analyses.

Pellet Dropping

The high degree of relationship between NR and R and the similar ways in which the independent variables affected both suggest that the two measures are directly and conceptually related. Comparisons between the two conditions indicated that there was also a significant reinforcement effect across Ss. This had the general effect of almost adding a constant to the data recorded during NR. The use of the one whole task in this study was felt to more broadly represent a measure of social influence or susceptibility to experimenter influence which was magnified by verbal approval. Within this framework, NR became more than a baseline: it reflected susceptibility to social influence under the condition of verbal instructions or commands. Similarly, R represented the same relationship with additional effect of verbal approval added. It is with these factors in mind that the data are discussed below.

The sex and sex by race of S effects are consistent with the data previously presented in the susceptibility to social influence literature. While there was a main effect in favor of the females, the interaction data favoring white females over Negro females and Negro males over white males suggests that the results are more complex. It appears that there was a greater difference in the rates of responsiveness between white males and white females than between Negro males and Negro females. These data may be interpreted when considered with the findings of previous studies. Crandall (1965), Hetherington (1965) and Sgan (1967) all reported that the white females were more susceptible to social influence than white males. As a matter of fact, Sgan stated that the males appeared to be resistive to all the manipulations. A look at Fig. 7 and 13 lend some support to this statement. The three above mentioned studies included data from middle income communities and above while Sgan's data came from a population similar to the one investigated in the present study. It would therefore seem reasonable to assume that effects were not due to class factors. Another interpretation (the one offered by this writer) is that the data from the present study reflect more highly developed sex typing among whites than among Negroes with respect to responsiveness to social influence on tasks involving verbal instructions and verbal instructions plus verbal approval. Additional research needs to be done to determine what variables are responsible for the differential rates of responsiveness.

Results of the effects of adult characteristics proved even more difficult to evaluate. Most perplexing is the finding that Negro adults elicited higher rates of responding than whites regardless of the subject characteristic involved. None of the manipulations in the present study can account for this effect. In addition, the paucity of studies dealing with this factor prevent the possibility of speculation over the generalizability of the phenomenon. Though the effect appears to be substantial, interpretation will have to await the outcomes of additional investigations. Possibilities for future research might include focussing on the same adult factors as they interact with adult personality variables. It might also prove interesting to determine if the phenomenon can be replicated in other parts of the country.

Data indicating that female adults elicited higher rates of responding from all subjects are interpreted with an emphasis on the contextual factors of the Headstart program within which the present study was conducted. All of the teachers involved in the project were females. One of the goals of the project was to provide "positive success experiences" for the children. In addition, meals and snacks were given to each of the children by the female teachers everyday. Massive pairings of primary and secondary reinforcement with female characteristics would be expected to enhance the "influencability" or rewardingness of females in general. This interpretation was given some support by McCoy and Zigler's study (1965) when they showed that Ss previously involved in "warm and friendly interactions with an experimenter spent more time working on a task in the presence of that same adult. The dependent measure employed in the study was similar to the one utilized by this writer in that it represented an attempt to remove the effects of learning from a measure of social responsiveness. This writer would be remiss if the above topic was concluded without briefly alluding to the cross-sex results reported by Stevenson (1965). In his review of the social reinforcement literature Stevenson stated that the most consistent finding reported was that female and male Ss were in general more responsive to opposite sexed adults.

These investigations are difficult to interpret within the framework of the present study because they; (1) employed the use of different dependent measures (i.e. those affected by learning) and (2) utilized only middle class children. Satisfactory inclusion of these seemingly discrepant results depends on the importance of these two factors. Future research concerning social responsiveness might find them to be fruitful areas for study.

The effects of team variables during NR and R also proved to be of interest. Adults representing at least one of the three replications of each adult characteristic elicited differential rates of responding from Ss during NR. Similar results (with the exception of the data concerning Negro female adults) were found during R. This phenomenon has not been uncommon in the experimental literature (i.e. Stevenson, 1961; and Kennedy & Zimmer, 1968). Therefore, these data are viewed as additional evidence for the effects of individual difference factors of the influencing agent on tasks involving social influence. An effect such as this can be looked at in several ways. One view is that it constitutes a source of error which necessitates control when an investigation is focussed on class variables such as adult race and sex characteristics. The second possibility is to consider it as a legitimate source of variance attributed to individual differences along n dimensions. The second outlook leads to a program of research which could shed more light on the complex phenomena of social influence. This author is inclined to take the latter position. In any case a need for several replications within each characteristic has been demonstrated. The implication is for the reader to be particularly sensitive to studies in this area which do not employ the use of adult replications.

Preferences for Adult Characteristics

The finding that all children prefer white females most and Negro males least is particularly impressive in light of the fact that the sex and race characteristics of the interviewer weren't held constant. To the writer's knowledge this represents the first study where sex and race characteristics of the interviewer were controlled by including all combinations of them with each S's characteristic. Of equal importance was the significant interaction effect found between Ss' characteristics and preferences for particular adult characteristics. As mentioned before, with the exception of choices for white females, all but one group of Ss preferred their own characteristics best. Negro males were the only group to differ from this pattern of responding.

Previous studies concerning racial stereotypes in young children may provide an appropriate frame of reference for an interpretation of the preference data. Goodman (1952) indicates that children were capable of discriminating and exhibiting stereotypical responses to different races. Gregor (1966) indicated that Negro children were least likely and white children most likely to prefer members of their own race. This study was conducted in a southern metropolitan center. In a comparison of northern and southern children, Morland (1966) reported that Negro Ss preferred other raced children while whites preferred their own race. The same preferences were magnified in southern Ss. In another study Taylor (1966) demonstrated that elementary school children regardless of their race maintained negative valued stereotypes of Negroes. If the preference measure is to be construed as a similar type of indicator then it too lends support to the premise that children develop differential sexual and racial preferences early. One obvious implication is that children learn to respond early to social cues.

What exactly is being tapped by this measure is difficult to interpret. On one hand it may reflect generalized preferences for adults exhibiting these specific race and sex characteristics. However, it may also reflect evaluations stemming from a child's perception of himself. In all probability the above two explanations are not mutually exclusive and may be directly related to each other.

A final question arises as to whether differential effects accruing from the type of study would occur in other parts of the country. As mentioned before, Morland's data (1966) suggest that regional variations tend to interact with preference. In both the north and south, whites were preferred over Negroes. However, the effects tended to be more striking in the "deep south".

Relationship Between Different Measures of Responsiveness to Social Stimuli

Preferences and responsiveness to particular adults during pellet dropping and imitation

One of the most surprising results was that preferences for a particular adult characteristic are unrelated to rates of responding to that adult characteristic during imitation and pellet dropping procedures. One possible interpretation of this phenomenon is that the data reflect points of polarity along the dimension of physical presence. In other words, the patterns of responsiveness are related to whether the social influencing agent is physically or symbolically presented to the subject. If this is a relevant dimension, then it would be expected that the rates of responsiveness to influencing agents will reflect their physical propinquity to the Ss. This hypothesis can be readily subjected to empirical verification with additional research.

Relationship between rates of responding during imitation and pellet dropping

A low significant relationship between responsiveness to particular A characteristics during imitation and pellet dropping procedures partially support Patterson's contention that the two measures of "responsiveness to social stimuli" are related. However, the observation that the factors under investigation in this study differentially affected the two measures implies that the existing relationship between the two is more complex. The two measures of social influence seem to differ in degrees of subtlety. Imitation learning as defined by the paradigm presently employed seems to represent a more subtle task involving the process of social influence. In the imitation procedure we have a case where the contingencies are not clearly explicated. This is opposed to the two pellet dropping conditions where the contingencies are much clearer. If this were the case, we might expect that performances during an imitation procedure where the contingencies are more obvious would lead to a greater correspondence with pellet dropping scores. The paradigm of May (1965) where both measures of imitation (relevant and irrelevant) are used would be appropriate for answering this question.

V. SUMMARY

A 2x2x2x2x3x4 repeated measures design was used to investigate the effects of: sex of S, race of S, sex of adult, race of adult, replication within adult characteristics (team effect) and exposure trials on two measures of responsiveness to social stimuli (imitation and pellet dropping). Separate analyses were performed for verbal, motor, and total imitation and for rates of responding with verbal instructions and verbal instructions plus verbal approval on the pellet dropping task. A third measure of responsiveness to social stimuli was also employed; a 4x4x4 repeated measure design was used to investigate preferences for the adult characteristics to which each child characteristic was exposed. The third variable under investigation in this analysis was the effect of the characteristics of the interviewer on preferences given by the children. In addition, all of the tasks of adult influence were compared to determine the relationships between the various measures of responsiveness to social stimuli.

Comparisons of the imitation and pellet dropping measures with preference scores were not significant. The correlations between performances during the pellet dropping and imitation tasks were significant.

Analyses of the different measures of imitation yielded different results. The only significance reported for verbal imitation was a sex by race of S interaction (Negro females imitated more than Negro males and white males imitated more than white females). The major effects reported for motor imitation were a race of S (Negroes greater than whites) and race of S by team effect (response variability decreased when the racial characteristics of S and M were the same). The same effects were recorded for total amounts of imitative responding.

Analyses of the pellet dropping data indicated that the two conditions were highly related with the exception that performance rates during the verbal instructions plus verbal approval condition were higher. This was the result of a reinforcement

effect due to the mediation of verbal approval. Major findings of the two analyses revealed significant effects for sex of S (females responded more than males), sex of adult (females elicited higher rates of responding than males), and race of adult variables (Negroes elicited higher rates of responding than whites). Significant sex by race of S (white females emitted more responses than Negro females but Negro males responded more than white males) and team effects were also found (different adults within each adult characteristic elicited differential rates of responding). Preference data yielded significant main effects for preferences for particular adult characteristics (white females were preferred most and Negro males least) and an interaction effect between characteristics of Ss and preferences for specific adult characteristics (all Ss rated their own characteristics highly with the exception of Negro males).

The results were interpreted as indicating the complexity of the multidimensional phenomena called responsiveness to social stimuli. Discussions of the effects of the independent variables on each of the different measures were explained in terms of the differential effects of situational factors, as they interacted with the variables under investigation, along with hypotheses of the relevance of several variables not included in the present investigation.

REFERENCES

Bandura, A. Social learning through imitation. In M. R. Jones (Ed.). Nebraska Symposium, 1962, 211-274.

Bandura A. Influence of model's reinforcement contingencies on the acquisition of imitative responses. Journal of Personality and Social Psychology, 1965, 1, 589-595.

Bandura, A., & Huston, Aletha. Identification as a process of incidental learning. Journal of Abnormal and Social Psychology, 1961, 63, 311-318.

Bandura, A., & Walters, R. H. Social learning and personality development. New York: Holt, Rinehart & Winston, 1963.

Bandura, A., Ross, Dorothea, & Ross, Sheila A.. A comparative test of the status envy, social power and secondary reinforcement theories of identificatory learning. Journal of Abnormal and Social Psychology, 1963, 67, 527-534.

Bandura, A., & Kupers, Carol J. Transmission of patterns of self-reinforcement through modeling. Journal of Abnormal and Social Psychology, 1964, 69, 1-9.

Bandura, A. & Whale, Carol K. The influence of antecedent reinforcement and divergence of modeling cues on patterns of self-reward. Journal of Personality and Social Psychology, 1966, 3, 373-382.

Berkowitz, H., & Zigler, E. Effects of preliminary positive and negative interactions and delay conditions on children's responsiveness to social reinforcement. Journal of Personality and Social Psychology, 1965, 2, 500-505.

Berkowitz, H., Butterfield, E. C., & Zigler, E. The effectiveness of social reinforcers on persistence and learning tasks following positive and negative social interactions. Journal of Personality and Social Psychology, 1965, 2, 706-714.

Crandall, V. C., Crandall, V. J. & Katkovsky, W. A. Children's social desirability questionaire. Journal of Consulting Psychology, 1965, 29, 27-36.

Dorr, D. A study of the relationship of race, socioeconomic class, early educational experience, and sex of child to imitative responding and its correlation with speech development. Unpublished doctoral dissertation, Florida State University, 1969.

Gewirtz, J. L., & Baer, D. M. Deprivation and satiation as drive conditions. Journal of Abnormal and Social Psychology, 1958, 57, 165-172.

Goodman, M. E. Race awareness in young children. Massachusetts: Addison-Wesley Press, 1952.

Gregor, A., James, B., & McPherson, D. Racial attitudes among white and Negro children in a deep-south standard metropolitan area. Journal of Social Psychology, 1966, 68 (1), 95-106.

Hanlon, Camille C. The effects of social isolation and characteristics of the model on accent imitation in fourth-grade children. Dissertation Abstracts, 1965, 25 (10), 6076.

Hetherington, E. M. A developmental study of the effects of sex of the dominant parent on sex-role performance, identification, and imitation in children. Journal of Personality and Social Psychology, 1965, 2, 188-194.

Kennedy, J. J., & Zimmer, J. M. Reinforcing value of five stimulus conditions in a quasi-counseling situation. Journal of Counseling Psychology, 1968, 15, 357-362.

Kennedy, Wallace A., & Vega, Manuel. Negro children's performance on a discrimination task as a function of examiner race and verbal incentive. Journal of Personality and Social Psychology, 1965, 2, 839-843.

McCoy, Norma, & Zigler, E. Social reinforcer effectiveness as a function of the relationship between child and adult. *Journal of Personality and Social Psychology*, 1965, *1*, 604-612.

May, J. G. Jr. A developmental study of imitation. Unpublished doctoral dissertation, Indiana University, 1965.

May, J. G. Jr., & Breyer, N. L. The effects of race and socioeconomic status on imitation learning in children using white male and female models. Paper presented at the Southeastern Psychological Association, Roanoke, Virginia, 1968.

May, J. G. Jr., & Seymour, Judith. Imitation as a response class. Paper presented at the Southeastern Psychological Association, Roanoke, Virginia, 1968.

Mischel, W. A social learning view of sex differences in behavior. In Eleanor E. Maccaby (Ed.), *The development of sex differences*. Stanford: Stanford University Press, 1966, pp. 56-81.

Mischel. W., & Liebert, R. M. Effects of discrepancies between observed and reward criteria on their acquisition and transmission. *Journal of Personality and Social Psychology*, 1966, *3*, 45-53.

Mischel, W., & Liebert, R. M. The role of power in the adoption of self-reward patterns. *Child Development*, 1967, 38, 673-683.

Morland, K. J. A comparison of race awareness in northern and southern children. *American Journal of Orthopsychiatry*, 1966, *36* (1), 22-31.

Patterson, G. R. Parents as dispensers of aversive stimuli. *Journal of Personality and Social Psychology*, 1963, *2*, 844-851.

Patterson, G. R. Responsiveness to social stimuli. In Leanard Krasner and Leonard P. Ullman (Eds.), *Research in Behavior Modification*. New York: Holt, Rinehart, & Winston, Inc., 1965.

Patterson, G. R., Littman, R. A., & Hensey, W. C. Parental effectiveness as reinforcers in the laboratory and its relation to child rearing practices and child adjustment in the classroom. Journal of Personality, 1963, 32, 180-199.

Rosenblith, Judith F. Learning by imitation in kindergarten children. Child Development, 1959, 30, 69-80.

Rosenhan, David L. Effects of social class and race on responsiveness to approval and disapproval. Journal of Personality and Social Psychology, 1966, 4, 253-259.

Rosenhan, D., & White, F. M. Observation and rehearsal on determinants of prosocial behavior. Journal of Personality and Social Psychology, 1967, 5, 424-431.

Sgan, Mabel L., Social reinforcement, socioeconomic status and susceptibility to experimenter influence. Journal of Personality and Social Psychology, 1967, 5, 202-212.

Stevenson, H. W. Social reinforcement with children as a function of CA, sex of E, and sex of S. Journal of Abnormal and Social Psychology, 1961, 63, 147-154.

Stevenson, H. W. Social reinforcement of children's behavior. In L. P. Lipsitt and C. C. Spiker (Eds.). Advances in child development and behavior. Vol. 2. New York: Academic Press, 1965, pp. 97-126.

Stevenson, H. W., & Allen, Sara. Adult performance as a function of sex of experimenter and sex of subject. Journal of Abnormal and Social Psychology, 1964, 68, 214-216.

Stevenson, H. W., & Knights, R. M. Social reinforcement with normal and retarded children as a function of pretraining, sex of E and sex of S. American Journal of Mental Deficiency, 1962, 66, 866-871.

Taylor, R. G. Jr. Racial stereotypes in young children. Journal of Psychology, 1966, 64 (2), 137-142.

Zigler, E. F., & Kanzer, P. The effectiveness of two classes of verbal reinforcers on the performance of middle and lower class children. *Journal of Personality*, 1962, *30*, 157-163.

APPENDIX A

SUBJECT ______________ Model W . N. Exposure Trial: 1 2 3 4

Sex: M F M F

Race: W N Team: 1 2 3

PELLET DROPPING

	MINUTES															
	1	2	3	4	5	6		1	2	3	4	5	6			Totals
Non-Reinf.																
Reinf.																

IMITATIVE BEHAVIORS

						TRIALS												
	1	2	3	4		1	2	3	4		1	2	3	4				
Hands over eyes																		M
Facing sideways																		M
"Ready"																		V
"Go"																		V
Claps hands																		M
"This one"																		V
Stands doll on floor																		M
"Up and down doggie"																		V
Stands doll on box																		M
"All done"																		V

Totals: Verbal ______ Motor ______ Total ______

Preference Data Sheet

Subject:	Model:
Sex: M F	Sex: M F
Race: W N	Race: W N

List number of candies given by child on the line next to the appropriate person

NM_____
NM_____
WM_____
WM_____
WF_____
NM_____

NF_____
WF_____
WF_____
NF_____
NF_____
WM_____

Totals NM_____ WM_____ WF_____ NF_____

Cell Means of the Analyses of Variance for Verbal Imitation

Team	NFSs[a]	NMSs[b]	WMSs[c]	WFSs[d]
Negro Female Models				
1	3.875	4.875	5.375	0.000
2	9.250	2.250	1.625	8.125
3	9.125	4.875	13.500	6.250
Negro Male Models				
1	7.125	3.625	3.250	2.875
2	9.625	6.125	8.125	1.000
3	4.625	1.500	5.125	6.125
White Female Models				
1	8.250	4.000	5.000	5.750
2	4.375	5.000	.5000	4.250
3	9.750	7.250	8.500	6.500
White Male Models				
1	5.000	4.625	9.500	3.000
2	7.625	6.125	12.625	3.500
3	10.250	4.250	2.750	5.125

[a] Negro female subjects

[b] Negro male subjects

[c] White male subjects

[d] White female subjects

Cell Means of the Analysis of Variance for Motor Imitation

Team	NFSs[a]	NMSs[b]	WMSs[c]	WFSs[d]
Negro Female Models				
1	38.750	37.175	18.000	26.375
2	35.500	37.750	38.625	40.750
3	38.500	35.175	34.250	36.375
Negro Male Models				
1	40.625	40.875	29.375	25.875
2	40.250	39.175	27.375	41.500
3	38.625	35.500	40.500	35.625
White Female Models				
1	28.000	30.000	34.000	36.500
2	31.250	36.675	24.750	30.750
3	45.125	36.000	38.750	35.625
White Male Models				
1	30.500	37.175	31.000	31.625
2	38.125	36.875	27.125	34.750
3	39.500	38.625	29.625	34.675

[a] Negro female subjects

[b] Negro male subjects

[c] White male subjects

[d] White female subjects

Cell Means of the Analysis of Variance for Total Imitation

Team	NF$\underline{S}$s[a]	NM$\underline{S}$s[b]	WM$\underline{S}$s[c]	WF$\underline{S}$s[d]
Negro Female Models				
1	42.625	42.000	23.375	26.375
2	44.750	40.000	35.250	49.125
3	47.625	40.000	48.250	42.625
Negro Male Models				
1	47.750	44.500	32.625	42.250
2	49.750	45.250	35.500	42.500
3	43.750	37.000	45.625	41.750
White Female Models				
1	36.250	34.000	39.000	42.250
2	35.625	41.625	25.250	35.000
3	54.375	43.250	43.000	43.000
White Male Models				
1	35.625	41.750	40.500	34.625
2	45.750	43.000	39.750	38.250
3	49.750	42.875	32.375	39.750

[a] Negro female subjects

[b] Negro male subjects

[c] White male subjects

[d] White female subjects

Cell Means of the Analysis of Variance for Pellet Dropping NR

Team	NF*S*s[a]	NM*S*s[b]	WM*S*s[c]	WF*S*s[d]
Negro Female Adults				
1	208.375	206.500	161.875	200.500
2	206.625	189.750	184.500	206.375
3	223.750	229.250	240.375	260.875
Negro Male Adults				
1	172.875	163.875	161.250	184.125
2	208.500	200.375	155.500	216.125
3	175.875	171.250	178.250	175.375
White Female Adults				
1	151.375	150.625	163.375	188.000
2	139.125	184.625	144.000	153.750
3	209.125	167.375	189.625	203.375
White Male Adults				
1	173.750	188.750	167.250	204.125
2	144.875	150.875	154.500	154.750
3	183.375	168.000	148.375	188.625

[a] Negro female subjects

[b] Negro male subjects

[c] White male subjects

[d] White female subjects

Cell Means of the Analysis of Variance for Pellet Dropping R

Team	NFSs[a]	NMSs[b]	WMSs[c]	WFSs[d]
		Negro Female Adults		
1	145.875	148.500	104.625	144.875
2	148.250	141.500	138.125	144.375
3	142.625	146.125	146.750	169.250
		Negro Male Adults		
1	118.750	115.750	108.875	121.750
2	153.375	148.250	115.125	152.125
3	135.000	131.000	137.000	131.000
		White Female Adults		
1	107.875	104.000	113.375	130.000
2	118.750	133.500	112.375	126.125
3	150.750	116.125	135.750	140.500
		White Male Adult		
1	111.875	127.375	108.750	137.250
2	106.500	104.625	109.250	106.375
3	136.000	133.250	113.000	135.500

[a] Negro female subjects

[b] Negro male subjects

[c] White male subjects

[d] White female subjects

Preferences for Specific Adult Characteristics

Subjects	NM[a]	WM[b]	WF[c]	NF[d]
NF*S*s	.93424	.97160	1.15853	1.14211
WF*S*s	.89886	1.06466	1.21056	1.04040
NM*S*s	.98718	1.07247	1.09605	1.03603
WM*S*s	1.01319	1.07251	1.18849	.90504

Interviewers	NM	WM	WF	NF
NF	.93424	.97160	1.15853	1.14211
WF	.89886	1.06466	1.21056	1.0404
NM	.98718	1.07247	1.09605	1.03603
WM	1.01319	1.07251	1.18849	.90504

[a] Preferences for Negro male adults

[b] Preferences for white male adults

[c] Preferences for white female adults

[d] Preferences for Negro female adults

APPENDIX B

IMITATION AS IT RELATES TO SOCIAL LEARNING IN CHILDREN

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INTRODUCTION

Many theorists and researchers have placed a heavy emphasis on the relationship of imitation to the acquisition of different classes of social responses.

Freud (Bronfrenbrenner, 1960) and Bandura and Walters (1963) stressed the importance of imitation for socialization of children. Bandura and Rosenthal (1966) and Berger (1961) demonstrated that observation of a model could facilitate the acquisition of emotional responses. Bandura (1965) and Bandura, Grusec and Menlove (1967) suggested that behavior modification could be facilitated in some cases by placing a child in an imitative learning situation. Baer, Peterson, and Sherman (1967) used modeling procedures to increase the behavioral repertoires of mentally retarded children. Mischel (1966) suggested that imitative learning is critical for the adoption of sex-appropriate behaviors. Panman (1965) utilized modeling procedures to facilitate concept learning.

This paper will endeavor to deal with the application of various notions of imitation to social learning in children. Theories of imitation will initially be reviewed and summarized. Attention will then focus on research dealing with imitation. The uses of imitation as both dependent and independent variables will also be considered. The literature review will focus on children as the subject population. Possible directions and suggestions for future research in the area will be offered in the final section of the paper.

Imitation is a term which has meant many things to different people. For the purposes of this paper imitative responses are said to occur if an observer (O) performs responses (cognitive, affective on motor behavior) which are functionally related and topographically similar to those initially performed by another individual (model).

An additional distinction will be made between modeling procedures and imitative learning (responding). Modeling procedures will henceforth refer to the use of imitation as an independent or process variable whereby the acquisition of certain responses will be facilitated. The use of modeling procedures to modify the syntactic style of children by Bandura and Harris (1966) is cited as an example of this approach. The terms imitative learning (responses) and imitation will refer to the use of imitation as a dependent or outcome variable. Studies investigating the effects of antecedent reinforcement on imitation by Bandura and Huston (1961) and Bandura and Whalen (1966) are used as demonstrations of the latter category.

The above distinctions will be particularly useful in the review of literature but less applicable to a discussion of the general theories of imitative learning and modeling procedures. Difficulties in dealing with this topic are reflected by theorists' inability to deal with above distinctions. In many cases, the theorists interchange the two categories with little or no acknowledgement that a distinction exist. Typically, the so-called theories of identification or modeling procedures have focused on the "mechanisms" or ways in which classes of responses have been acquired. However, the adaptation of the model's modes of responding, which are typically included in these theories, constitutes a use of the concept as a dependent variable.

THEORIES OF IMITATIVE LEARNING AND MODELING PROCEDURES

Bandura and Walters (1963) state that imitation and identification are terms used by experimental psychology and personality theories respectively. "Both concepts encompass the same behavioral phenomenon, namely the tendency for a person to reproduce the actions, attitudes or emotional responses exhibited by real-life or symbolized models." (p. 89) With this position taken, it becomes necessary to include the dominant contemporary notions in both the above areas of psychology. For a more thorough historical review of the concept the reader is referred to the following authors: Bronfenbrenner (1960), Mowrer (1960, Bandura and Walters (1963) and May (1965).

Freud

Freud (Bronfrenbrenner, 1960) hypothesized two distinct types of identification. Anaclitic identification occurs with individuals of both sexes. It is the result of the withdrawal of what has previously been noncontingent nurturance administered by the mother. When the nurturance is withheld or made contingent on various responses the child adapts the various behaviors of the mother. The process of this on-going sequence of events has been labeled anaclitic identification.

Identification with the aggressor or defensive identification is the second type of imitation in Freud's system. It occurs only in males and is differentiated from anaclitic identification in terms of the different sets of antecedent conditions which initiate it (Bandura and Walters, 1963). This results in the child's acquisition of behaviors typically exhibited by the father. In order to relieve the threat of punishment the father's behaviors are modeled by the child who is in addition vicariously rewarded by the mother.

Sears

Sears (1957,1963, and 1965) has attempted to combine the Freudian notions of anaclitic and defensive identification within a behavioral framework. A motive to identify is established as the observer becomes dependent on the model. Dependency is fostered through the process of ministering to the child's biological needs. As a result of this procedure the mother's behavior becomes secondarily reinforcing. As the child develops, noncontingent nurturance is gradually withdrawn. In order to receive reinforcement, the child approximates the behavior of the mother. Sears notes that maximum strength of the motive to identify is achieved if nurturance and affection are periodically withdrawn. Sears, Rau and Alpert (1965) point out that all children initially adopt feminine-maternal modes of behavior, but that boys, through the process of defensive identification, change and adopt a masculine role. Distinctions are also made between two classes of imitative responses (sex-appropriate and adult-like behaviors) in terms of the antecedent conditions. The incorporations of masculine or feminine behaviors relates more to parental attitudes of sex and agression than to the actual available behaviour of the models. Imitation of adult-like behaviors are more the result of adoption of the behaviors of the models.

Mowrer

Mowrer (1960) classifies two types of imitation in terms of whether the observer is directly or vicariously the recipient of reinforcement. In the former,case, a model (M) directly reinforces the observer (O) while he is simultaneously performing a response. The responses of the M, through continued pairing with reinforcement, become secondarily rewarding. The observer then administers secondary reinforcement to himself by reproducing the model's responses.

The second type of imitative responding has been labeled empathetic. This procedure occurs when the model exhibits the responses and receives the reinforcement. Mowrer assumes that the observer empathetically receives the sensory aspects of model's behavior and similarly experiences the model's reinforcement. As a result, a higher-order vicarious conditioning procedure occurs whereby the observer can mediate his own reinforcement by reproducing the model's responses.

Whiting

Whiting (1960) has suggested that the necessary antecedent condition for identification is status-envy. The child imitates the behavior of the parent who is the recipient of desired reinforcers. His theory represents an extension and modification of what Freud called defensive identification.

Maccoby

Maccoby, in contrast to Whiting, proposes that a child covertly practices and acquires behaviors similar to other adults with whom he is interacting. The adults who mediate and control the resources needed by the child are imitated most. Bandura, Ross and Ross (1963c) attempted to evaluate the positions of Whiting, Maccoby along with the secondary reinforcement notion of Mowrer within a single experimental design. They found that both boys and girls imitated the model, who was in control of the resources.

Miller and Dollard

Miller and Dollard (1941) have taken the Hullian model and applied it to imitative learning. The critical conditions necessary for an imitative response to occur are drive, cues, reward and response. They conceive of two types of imitation within this framework; 1) matched dependent behavior and 2) copying. Matched dependent behavior occurs in a situation where the relevant cues for obtaining certain goal responses are unavailable to the observer. Consequently, the model's behavior is used as a cue for achieving the reinforced responses. This type of responding is only possible if the behaviors necessary for the acquisition of reinforcement are already a part of the observer's repertoire. Copying is an imitative response which utilizes the concepts of sameness and difference. It represents the gradual and progressive shaping of a complex response which was previously not a part of the observer's repertoire. The imitative response is gradually modified until it is topographically similar to the response emitted by the model.

Baer and Sherman

Baer and Sherman (1964) have investigated imitative responding within the operant framework. Baer, Sherman and Peterson (1967) state that "imitation is not a specific set of behaviors which can be exhaustively listed. Any behavior may be considered imitative if it temporarily follows behavior demonstrated by someone else, called a model, and if its topography is functionally controlled by the topography of the model's behavior." Imitative responding characterized above generalized to other responses performed by the observer. In effect, the performance of behaviors similar, along a stimulus dimension, to those of a model becomes reinforcing. Often the performance of imitative responses other than those directly reinforced occurs. Peterson (1967) suggests that this is an indication of the development of general class of imitative responses which are indirectly under the control of reinforcement. Studies by Baer and Sherman (1964) and Baer, Peterson and Sherman (1967) are cited as examples of this phenomenon. Other research, May 1965), May and Seymour (1968), May, Friedman, and Moore (1968) indicates that the concept of imitation as a generalized response class is insufficient explanation for what is occuring. May (1965) suggests that it may be necessary to make a distinction between relevant and irrelevant imitation within the confines of the laboratory.

May defines relevant imitation as the "imitation of behaviors of a model which, if imitated by the subject, would be reinforced by the experimenter". Irrelevant imitation is defined as "the imitation of behaviors of the model that are not necessary to gain a contingent reinforcer".

Bandura and Walters

Bandura and Walters distinguish between the acquisition and the performance of an imitative response. Acquisition of a response by an observer is primarily the result of contiguous sensory stimulation. The authors maintain that imitative responses are acquired without the necessity of performing the responses to be imitated. Performance of the responses may be a function of factors such as the characteristics of the model, previous reinforcement history and other characteristics of the observer. Bandura (1965) suggests that "symbolic or representational responses in the form of images and verbal associates of the model's behavior constitute the important residues of observational experiences" (p. 11).

Bandura, Grusec and Menlove (1966) have recently investigated this along with the role of incentive set observational learning. The authors assume "in the contiguity-mediational theory that symbolic matching responses possess cue-producing properties that are capable of eliciting, some time after observation, overt responses corresponding to those that were modeled, provided the requisite components exist in the observer's repertoire." In order to test some of these assumptions children were assigned to one of three groups observing filmed behavior of a model. One group was required to engage in concurrent verbalization of what was occuring. The second group passively observed the film and a third group engaged in competing verbalizations during the film presentation. Half of the children in each group observed with no incentives, while the other half were provided with a positive incentive set.

"Ss who generated verbal equivalents of the modeling stimuli during exposure subsequently reproduced more matching responses than the passive viewers, who in turn showed a higher level of acquisition than children in the competing symbolization treatment." The manipulation of incentive set had no effects. Bandura et. al. interpreted the above findings as a demonstration of the role of symbolization in the facilitation of observational learning. Vicarious reinforcement of the model in the presence of the observer plays a most important part in the above notion of imitation. Bandura (1965) states that "a vicarious reinforcement event not only provides (1) information concerning probable reinforcement contingencies, (2) knowledge about the controlling environmental stimuli, and (3) displays of incentives possessing activating properties, but it also includes affective expressions of the rewarded or punished viewer". (p. 31)

Exposure to a model can have three possible effects: "(1) a modeling effect, involving the transmission of precisely imitative response patterns not previously present in the observer's repertory; (2) an inhibitory or disinhibiting effect, reflected in an increase or decrease in the frequency, latency, or intensity of previously acquired observer responses that are more or less similar to those exhibited by the model; and (3) a possible eliciting effect, in which the observation of a model's responses serves as a cue for releasing similar observer responses that are neither entirely novel nor inhibited as a result of prior learning" (Bandura and Walters, 1963, p. 106).

All of these effects can occur without the necessity of direct reinforcement to the observer.

Walters and Parke (1965) represent an extension and addition of the Bandura and Walters model to an understanding of the antecedent conditions necessary for the general occurence of imitation and social responsiveness. Visual and auditory stimulation is seen as serving an important role in the development of social responsiveness. This is contrasted with the various positions mentioned above which view the development of attachment behavior primarily in terms of the satisfaction of physical needs. "The relationship between a child and a parent who cares for, protects, and feeds him ("anaclitic object choice") provides the foundation both for the development of imitative behavior and for the establishment of subsequent social-emotional attachments: This position ignores the possibility that the occurrence of imitative behavior may precede the formation of specific attachments and may, therfore, itself contribute to the develpment of a child's responsiveness to others." The authors report that some of the early infant studies suggest that actions and sounds of others are reproduced by infants before specific attachments develop. "Moreover the infant's imitative responses may prolong adult-child interactions and thus facilitate the development of attachment behavior. Since mutual-interaction sequences involving imitation are, especially in the first months of a child's life, largely, if not entirely mediated by vision and hearing the data provide additional evidence for the importance of the role of the distance receptors in the development of social responsiveness". Walters and Parke also suggest that the use of the distance receptors is in some way initially rewarding and that the effective use of them is facilitated by a limited amount of emotional arousal.

IMITATION AS AN OUTCOME VARIABLE

The next section looks at imitation as a dependent or outcome variable. Research is reviewed with the temporal distinctions of antecedent and consequent conditions as a base.

Antecedent conditions can be subdivided into two categories: characteristics of the observer and characteristics of the model.

Characteristics of the observer will be dealt with first. Some studies suggest that age may be a relevant variable for imitative learning to occur. However, most studies have attempted to hold age constant or have studied age age effects within a very restricted range (McDavid, 1959 and Bandura and Huston, 1961). Two studies by May (1965) and Hale (196[illegible]) represent notable exceptions. May used 3, 5, and 7 year old children and found that age is related to both relevant and irrelevant imitation. Five year old children performed the most irrelevant imitation while the three year olds performed the least. Also under continuous reinforcement the three year olds took the greatest number of acquisition trials to reach criteria. Hale investigated learning in 444 children enrolled in grades 3 through 7. The children were shown a film under the pretense of it being a reward for previous cooperation. After the film presentation each child was given a booklet containing 30 questions about the film. Incedence of correct responses increased between grades 3 and 6 but declined at grade 7. A curvilinear relationship between age and correct response was reported for verbal but not "visual types of questions."

A second variable which has also been investigated in a limited manner is position in the family. Two studies relate this variable to imitative learning. McDavid (1959) divided children approximately 4-1/2 years old into three groups: oldest, middle and youngest children. He did not obtain significance, but reported a trend in the direction of more frequent imitation by the oldest child in the family. Friedman (1967) found that the oldest children in his family performed significantly more irrelevant imitative behaviors than children who were not the oldest. No significant differences were found between the two groups with respect to relevant imitative learning.

Two studies have been concerned with the role of the child's socio-economic position. Sgan (1967) investigated the susceptibility of the observer to be influenced by different choices made by the experimenter. "Working-class boys were less susceptible to the influence of the experimenter when compared to working-class girls and middle-class boys and girls. May and Breyer (1968) found that middle-class children performed more irrelevant verbal imitation than lower class children. The authors also reported no differences in motoric imitation between the groups.

One study has been reported using intelligence as a variable. Rosenblith (1961) reported that differential amounts of imitative behaviors were performed in decreasing amounts by the following groups: (1) bright boys, (2) less bright boys, (3) bright girls and (4) less bright girls. The same order was also reported for number of color matching responses. Subjects in the study were all enrolled in kindergarten.

Two studies have been concerned with the investigation of comparative rates of imitation between different populations of children. Walters and Willows (1968) had disturbed (institutionalized for character or behavior disorders) and non-disturbed male child exposed to video-recorded sequences of a female model engaging in aggressive and non-aggressive behaviors depending upon the experimental conditions. Comparisons indicated that the films of the models effectively evoked imitative behavior in the different groups. Disturbed children imitated the nonaggressive model less than non-disturbed children, but the groups did not differ with respect to imitation of the aggressive model. May and Breyer (1968) investigated imitative behavior of different raced children using white male and female models. The subject population was comprised of white and Negro males enrolled in a summer Head Start program. White children imitated more irrelevant verbal behaviors, but motoric imitation remained constant across groups.

Several studies have been concerned with the relationship between arousal and imitation but only one was done with non-adults. McNulty and Walters (1962) found that emotional arousal facilitated a social influencing effect in boys (girls were not used). Arousal plus argument influenced more boys to match their attitudes on a controversial topic with those of a confederate of the experimenters.

Sex of the observer has been more thoroughly investigated but results have been equivocal and partially dependent on other factors such as age and the class of responses investigated. Most of the significant results have been found when the effects of modeling procedures on the elicitation of aggression were investigated. Boys typically imitated more under this condition. These studies will be discussed in another part of the paper. Many investigators involving neutral "imitative" behaviors have not found significant differences between males and females (Bandura and Huston, 1961; Bandura and Kupers, 1964; Bandura and Whalen, 1966; Rosenkran and White, 1966; Mischel and Liebert, 1966, 1967.). Several investigators do report sex differences. May (1965) found five year old boys performed more imitative behaviors, but found no differences at ages 3 and 7. Rosenblith (1959) found that girls in general were less sensitive to experimental manipulations involving imitation. However, in 1961, she reported more imitation for boys but more color matching by girls. Girls imitated more than boys in a study by Hetherington (1965). Interaction effects between isolation and imitation favoring girls was observed by Hanlon (1965) while no isolation resulted in more imitation by boys.

Two studies have looked at the effects of previous reinforcement history. Children who had received frequent reinforcement from their peers imitated a peer model who was rewarding more than a non-rewarding model. However, subjects who had previously received little reinforcement from peers imitated non-rewarding peers more than rewarding peers. (Hartup & Coates, 1967). In another study (Rosenbaum, Chalmers and Horne, 1962) Ss who had experienced failure imitated a model more than Ss who had experienced success.

One study investigated the effects of dependence on the performance of relevant and irrelevant imitation. "An adult model taught 26 high-dependent and 26 low-dependent preschool children how to run a post office (intentional learning) and at the same time displayed various partially relevant and completely irrelevant behaviors (incidental learning). Each child first played the role of postman and then had the opportunity to teach another child how to play. Low-dependent children showed more intentional learning and less incidental learning than the high-dependent children. (Ross, 1966).

Characteristics of the model represent another critical class of antecedent variables which influence the performance of imitative responses. Rewardingness (nurturance or non-contingent reinforcement) has been one of the most popular manipulations in the imitation literature. One of the reasons for this popularity is the central part the concept has played in many of the contemporary theories of imitation and modeling procedures. All of the studies with the exception of one (Madsen, 1967) support the notion that rewardingness of the model facilitates imitative behavior. Bandura and Huston (1961) matched groups for dependency and still reported a facilitation effect for "nurturance". Grused (1966) indicated that "high model rewardingness" when compared with "low model rewardingness" produced more self-critical responses by kindergarten children. Hanlon (1965) reported that children exposed to a nurturant model more readily adopted the model's British accent. Sgan (1967) found that nurturance and withdrawal of nurturance were equally effective over unresponsive attention in producing "susceptibility to experimenter influence". Rosenblith (1961) indicated that "learning by imitation depends on having a same sexed leader. who is attentive.

Directly related to the concept of rewardingness is the notion of control of resources. Three studies are cited as attempts to observe the effects of the model's control of resources on imitative learning. The classic study reported above by Bandura, Ross and Ross (1963) demonstrated that control of resources was more effective in eliciting imitation than either secondary reinforcement or having another model receive the desired reinforcers. Mischel and Grusec (1966) and Grusec and Mischel (1966) manipulated the prospects of future control of resources by leading children to believe that the model was going to be their permanent teacher. They confounded rewardingness and future control in both studies and compared them with low rewardingness and no future control. In both cases high rewardingness combined with future control resulted in more imitation.

Parental characteristics of children taking part in imitative learning studies has been investigated by several authors. McDavid (1959) found that there was a high relationship between imitating an adult leader and "parental strictness:. Imitation also seemed to be related to parental overprotectiveness. Baxter (1965) with the use of a questionnaire was able to show that perception of the degree of severity of socialization was related to perceived similarity of the experimenter. Subjects who ascribed more authoritarian child-rearing attitudes to their parents perceived themselves as being more similar to an instructor who used punishment procedure in a learning situation with them. Democratically socialized subjects perceived themselves as being more similar to the experimenter who used reward while engaged in a learning task with them. Hetherington (1965) and Hetherington and Frankie (1967) utilized parents as the models in an imitation learning situation with their children after interviewing the parents. Parental dominance was related to increased imitation in both boys and girls. "Maternal dominance was related to disruption in the formation of masculine sex-role preferences in girls or in mother-daughter similarity". (Hetherington, 1965)

The imitation measure used was a series of value judgments in which the parents had the opportunity to go first. The other study investigated the relationship between parental dominance, warmth and conflict on imitative behavior. Parental dominance was the most relevant variable for imitation in boys while maternal warmth was the most effective for girls.

Response consequences to the model have been one of the most systematically investigated variables in the imitative learning literature. Part of the review of this topic will be done here while the rest will be reported during the discussion of the role of modeling procedures in facilitating certain classes of responses.

The procedure usually employed for investigating this question involves exposure to a model, either symbolically or live, who experiences various consequences contingent upon the performance of a series of behaviors. Following the models performance the observer, under various pretenses, is placed in a similar situation where his behavior is recorded. Craig (1967) and Walters, Leat and Mezei (1963) observed that punishment of a model resulted in the inhibition of imitative responses. The effects of a model being rewarded or punished were investigated by Bandura (1965b).

Those children under the reward condition performed significantly more imitative responses than subjects in the model punished condition. After obtaining past exposure rates of imitation all subjects were offered incentives contingent on the reproduction of the models' behaviors. The introduction of incentives eliminated the previous differences between groups. Bandura interprets this to indicate that the consequences to a model affect the performance but not the acquisition of imitative responses. Several studies have dealt specifically with the competence of the model. This has typically been accomplished by manipulating the percentage of time that a model is correct and received reinforcement. Rosenbaum, Chalmers and Horne (1962) found that "the more competent the model, the greater is the tendency to match his responses". Rosenbaum and Tucker (1962) found that learning was facilitated when the model's competence was either high or low. Learning was hindered when the model's adequacy was mediocre. Malsey (1967) also found that most interference occurred when the model was correct only fifty per cent of the time. Malsey also reported that a linear relationship existed between the model's prior success and " the number of trials needed to attain criteria when the solution called for exclusively imitative behavior". The effects of the model's success was also found to generalize across new learning situations. McDavid (1962, 1964) used a color discrimination learning task with an observational learning procedure and investigated the effects of varying the association between color and imitation. "Color discrimination took place most readily when color and imitation were either consistently (100%) or randomly (33%) associated, but with somewhat greater difficulty when they were partially but imcompletely (67%) associated." A control group trained on the same task, without the opportunity of observing a model, had a difficult time mastering the color discrimination. Friedman (1967) observed that subjects took more trials to reach criteria with relevant imitation when the model was under partial as opposed to continuous reinforcement.

Some theories of imitative learning require the investigation of the consequent conditions for the observer when viewing imitation as an outcome varible. Most of the studies concerning the variable have been done with adults.

Consequently, studies involving undergraduate college students will be included in this section. Baer and Sherman (1964) and Baer, Peterson and Sherman utilized shaping procedures with food as a reinforcer to establish matching responses in retarded children. In the Baer and Sherman study, three to be imitated responses were reinforced while a fourth was not. However, the fourth tended to occur whenever the other three were reinforced. This was interpreted as a demonstration of imitation as a general response class. Baer, Peterson and Sherman also found that certain imitative responses, though never directly reinforced also remained in the subjest's behavioral repertoires as long as some imitative responses were reinforced. The authors also found that "in the course of acquiring a variety of such responses, the subject's probability of immediate imitation of each new demonstration, before direct training, greatly increased."

Bisese (1966) investigated the sequencing effects of direct reinforcement (DR) and vicarious reinforcement (VR) on imitative responding. DR-VR sequencing facilitated more imitation the VR-DR sequencing. Kanfer and Marston (1963) demonstrated that both DR and VR facilitated learning in a verbal conditioning experiment. Lewis and Duncan (1958) reported that vicarious learning occurs only when the subject directly experiences the reinforcement during acquisition. Kanareff and Ranzetta (1961) investigated the effects of different schedules of task reinforcement on the acquisition of imitative responses. The authors reported the occurrence of more imitation uncer a schedule of 80 as opposed to 50 per cent task reinforcement. Marston (1963) using a modified Greenspoon verbal conditioning procedure found that "in extinction following acquisition with VR, instructions to continue emitting critical-class words were effective in retarding extinction, and that direct reinforcement to the observing S also led to a higher critical response rate."

IMITATION AS A PROCESS VARIABLE

This section stresses the utilization of modeling procedures to facilitate the acquisition of sevelal classes of responses. The response classes to be discussed are: self-controlling behaviors, aggression, reduction of avoidance responses, cognitive and language behavior and prosocial behavior. Bandura and Walters maintain that the acquisition of self-control is a primary product of the socialization process. The authors distinguish between three forms of self-controlling behavior: "resistance to deviation, the regulation of self-administered rewarding resources, and the postponement of immediate reinforcements in favor of some potentially more highly valued delayed reward" (p. 220. The role of modeling procedures will be discussed in relation to each of these forms of self-control. Most of the studies on self-controlling behaviors which utilize imitation as a process variable have focused on the regulation of self-administered rewards.

Bandura and Perloff (1967) divide a self-reinforcing event into four components: "1) a self-prescribed standard of behavior which serves as the criteria for evaluating the adequacy of one's performance, 2) a social comparison process (in an ambiguous situation adequate cirteria are lacking so models are used to set criteria for self evaluation, 3) reinforcers which are under the person's control and 4) a subject who serves as as his reinforcing agent."

Bandura and Kupers (1964), utilizing a bowling game, first observed that children would match self-administered rewards (candy which could be taken from a bowl at will) of the models when they achieved the same bowling scores for which the model was rewarding himself. The models used in this study were male and female adults and peers. Adults were imitated more than peers. No sex of model or sex of subject effects were observed.

Michel and Liebert (1966) utilized the same procedure as above but investigated the effects of creating discrepancies between performance criteria utilized by the model for self-reward and those which he imposed on the child. After the experimental procedure was carried out, the children were given the opportunity to play the game in M's absence. Schedules of self-reward in the model's absence were the most stringent when the model and child had "both initially adhered to a high criteria and least when S had been permitted to reward himself for low achievements. Ss who were trained to reward themselves only on a stringent criteria and observed M reward himself similarly, maintained more stringent schedules than those who were given the same stringent direct training for self-reward, but by a M model who rewarded himself leniently." In addition, half of the Ss in each treatment condition were given the opportunity to teach the same game to a younger child. Ss tended to impose the same criteria on the children which they had imposed on themselves.

Bandura and Whalen (1966) placed children into a series of success and failure experiences. Afterwards they were exposed to either: a model displaying high self-reward standards, an inferior model exhibiting very low self-reward criteria, an equally competent model displaying relatively high self-reward patterns, or they observed no models. Children exposed to the inferior models exhibited a greater frequency of self-reward at low performance levels and greater amounts of self-reinforcement when compared to subjects exposed to more competent models exhibiting higher schedules of self-reinforcement. Indications were also present which suggested that the subjects rejected the self-imposed reinforcement schedules of the more competent model and, instead adopted lower standards more in line with their own achievement.

Bandura, Grusec and Menlove (1967) investigated some antecedent conditions involved in self-reward behavior. Girls under a nurturance condition increased self-rewarding behavior when exposed to a conflicting peer's behavior, but emitted less self-rewarding behavior when not exposed to a conflicting peer. Boys demonstrated the opposite patterns of behavior. In the same study, vicarious positive reinforcement facilitated adoption of more severe self rewarding behaviors. "The combined influence of vicarious positive reinforcement and the absence of competing peer contingencies produced the most stringent pattern of self-reward." Presence of conflicting peer behavior under an adult model condition decreased the model's effectiveness as a transmitter of stringent self-reward behaviors.

One study (McMains and Liebert, 1968) investigated discrepant self-reward patterns displayed by"two successfully presented social agents and the criteria actually imposed by one of them upon the children's adoption of a standard." Subjects were trained to utilize stringent patterns of self-reinforcement by a model who either adhered to or deviated from the standard. Afterwards Ss performed in the model's absence. This sequence was followed by a second model who exhibited self-reinforcement patterns which were either discrepant or similar to the ones they had previously been taught. Again the subjects were required to perform alone. Ss observing two discrepant models were less stringent than those who observed two models exhibiting the same high standards of self-reinforcement. "Ss who observed one consistent and one discrepant agent were intermediately self-lenient."

A comparison between the efficacy of a self-monitored reinforcement system and an externally imposed reinforcement system was attempted by Bandura and Perloff (1967). One group of children created their own performance standards and administered self-reinforcement whenever the standards were reached. The same behavioral standards created by first group were imposed on the second group contingent on externally delivered reinforcement. The results indicated that "self-monitored reinforcement systems sustained substantially more responsivity than control conditions." Control groups received either no incentives or noncontingent reinforcement.

Mischel and Liebert (1967) investigated the relationship between the power of the model to dispense reinforcement and the adoption of the models lenient self-rewarding behavior as opposed to a stringent pattern which he set for the subject. Children who interacted with a potentially rewarding model displayed more stringent self-reinforcement patterns while alone than subjects in the control group. Subjects also imitated the higher criteria of the model when he had power. The model's more lenient behavior was imitated when his potential control of power was absent.

Self-criticism may be viewed as a type of self-reinforcement. In this case, self-reinforcement refers to the mediation of negative reinforcers. Grusec (1966) looked at some antecedent conditions related to self-criticism. During pretraining, children interacted with either high or low rewarding models. The same model then played a game with the subject and criticized his performance. This was followed by punishment in the form of withdrawal of love (WOL) or withdrawal of material reward. Termination of the punishment was then made contingent or noncontingent on the child's emission of self-critical remarks. "High model rewardingness was more effective than low model rewardingness regardless of the kind of punishment used in preducing the initial self-critical response. However, high model rewardingness and contingent reinforcement facilitated the subsequent development of self-criticism only when used in combination with WOL." According to Aronfreed (1963) self-criticism "represents one form of identification in which the child attains a formidable cognitive extension of his responses to a previously punished act." Self-criticism is viewed as a response to transgression. The child adopts the model's "critical evaluative responses, reduces the anxiety attached to transgression by reproducing punitive stimulus aspects of the agent which originally came to serve as cues signifying the termination of the anxiety that accompanied their anticipation." In essence the child anticipates punishment for a transgression which results in anxiety. The child can reduce the anxiety by reproducing the model's critical remarks. Self-criticism becomes reinforcing because it is associated with the termination of the child's anticipatory anxiety (Aronfreed, 1964).

Resistance to deviation represents the second form of self-controlling behaviors. An experimental procedure investigating resistance to deviation as a dependent variable involves exposure of the subject to some set of conditions which include either implicitly or explicitly the idea that the performance of a certain class of behaviors in prohibited. Then the child is placed in a situation , either in the presence or absence of the model, where the opportunity for the performance of the prohibited behaviors is enhanced. Behavioral measures are then taken which indicate the extent to which the child is engaging in deviant behaviors. Significant difference in children coming from groups exposed to different conditions are said to represent the differential degrees of effectiveness of those conditions to inhibit or facilitate resistance to deviation. Walters and Parke (1964) investigated the effects of the response consequences to the model on resistance deviation. Children were assigned to one of four film conditions: model reward, model punished, no consequences to model and no film.

Children in the model punished and no-film groups showed very few transgressions. Children in the model rewarded and no consequence conditions deviated much more. When prohibitions for the performance of the behaviors were removed, children in the model punished condition imitated the models transgressions as often as the children in the other three conditions.

Stein (1967) created a very boring task for subjects from two different schools. During the task children were exposed to a model who either yielded or refrained from engaging in a more desired activity. Ss exposed to a yielding model transgressed more than those who were exposed to a non-yielding or no model condition. Stein also found significant differences between the schools on all dependent measures. Consequently, suggestions were made for more representative sampling of subjects if research in this area is to be generalizable. It was also concluded that "inhibition, however, has not been demonstrated to result from observational learning. Contrary to the conclusions drawn by Bandura and Walters (1963), studies of aggression and resistance to deviation show that exposure to a nonaggressive or nondeviant model usually produces no more inhibition than that obtained under no model conditions (Bandura, Ross and Ross, 1963; Ross, 1962). Similarly, the amount of inhibition produced by a punished deviant or aggressive model has generally been found to be no different from that manifested without a model. (Bandura, Ross and Ross, 1963; Walters and Parke, 1964; Walters, Parke and Cane, 1965)."

Two studies have investigated the effects of the timing of punishment on resistance to deviation. Walters, Parke and Cane (1965) assigned children to one of eight conditions in a 2 X 4 factorial design which included four film and two timing of punishment procedures. Timing of punishment was manipulated by punishing a child at the onset or termination of a deviant response sequence. After this Ss were assigned to one of the four film conditions of models: model rewarded for deviant behaviors; model punished for prohibited behaviors; no consequences to the model; and no film. Early punishment resulted in more resistance to deviation than the delayed punishment condition. Significant differences were also found between the subjects exposed to the different film conditions. Children who saw the model-punished film exhibited fewer transgressions. The combination of early punishment and exposure to a punished model resulted in the most resistance to deviation. "Subsequent tests with problemsolving tasks, the solution of which had been demonstrated in the films revealed that Ss under model-rewarded and no-consequences conditions had learned from observation of the model; however, model-punished Ss did not perform significantly better in these tests than Ss who had not seen the film." Benton (1967) also investigated the role of timing punishment on resistance to deviation. He found that children who watched models punished earlier demonstrated more resistance to deviation. In this sutdy, Ss were also exposed to a model "trained by the correction for training (C) procedure as compared to those who observed no correction for training procedure (NC)." Children who saw models in the "C" condition exhibited fewer transgressions. No significant differences were additionally found between children directly trained and those exposed to a peer model.

The role of modeling procedures in the development of self-imposed delay of reward has been investigated in one study by Bandura and Miscel (1965). The authors used both live and symbolic (verbal presentation) models. Children initially were classified by their preferences for immediate, less valued rewards vs more valued delayed reinforcement. The measurement of delay of reward behavior occured immediately after exposure to the models and one month later in a different situation. "Both live and symbolic models produced substantial modifications in delay of reward behavior within the immediate social influence setting, but the changes induced in high-delay children through exposure to symbolic models were less stable over time."

Aggression as a response class has been one of the most popular topics of child researchers engaged in the investigation of imitative learning. A definition of aggression needs to be explicitly dealt with so that the results reported in the literature review can be evaluated by the reader. Time and the purpose of this paper prevent a more thorough treatment of the problem of adequate definitions. A definition given by Bandura and Walters (1963) is best suited for an understanding of how the concept has been utilized in the research below. Aggression is defined"solely by reference to observable characteristics and effects of responses and without reference to goals the responses supposedly mediate." The studies reviewed in this paper imply the use of aggression as "a class of pain-producing or damage-producing responses or as responses that could injure or damage if aimed at a vulnerable object." (p. 114). Both Bandura and Walters prefer the latter definition.

Lovaas (1961) randomly assigned children to observe the filmed presentation of either an aggressive or nonaggressive model. Children in the aggressive model condition performed more aggressive responses. Bandura and Huston (1961) initially treated children in nurturant or nonnurturant ways. Then the subjects were exposed to aggressive models. Observation of models, regardless of the previous model-child interactions, resulted in the emission of more imitative aggression.

Bandura, Ross and Ross (1963a) investigated the effects of exposure to aggressive, real-life models, human film models, and cartoon models on the aggressive behavior of pre-school children. "The children exposed to the aggressive models displayed more imitative aggressive responses than children in the non-aggressive - model or control groups." Results indicated that film-mediated models are as effective as real-life models in transmitting "aggressive behaviors." Bandura, Ross and Ross (1963b) manipulated the consequences of aggressive behaviors for models while children observed them. Ss who had watched a model rewarded for aggression imitated more aggressive behaviors than children in either punished model, nonaggressive model or control groups. Walters and Thomas (1963) found that exposure to a film mediated aggressive model increased the tendency for subjects to direct aggressive pain-producing responses toward a confederate of the experimenters. Berkowitz and Green (1966) in a similar study angered or treated subjects in a neutral manner. Then LSs were exposed either to a prizefight film of a man named "Kirk" or a racing film. Subjects were then given the opportunity to administer shocks to a confederate of the experimenter, labeled Kirk or Bob. "The greatest number of shocks was administered by angered Ss who saw a fight and had an accomplice named Kirk. Hartman (1966) also used the filmed presentation of aggressive models. He manipulated levels of arousal (aggression - arousal and nonarousal) and film conditions: neutral, instrumental aggression and one in which a confederate exhibited pain cues as a result of aggression. Subjects in the instrumental aggression condition, regardless of arousal (no physiological measures were taken) exhibited more aggressive behaviors. Subjects who were exposed to the arousal condition exhibited more punitive behavior than those who were not. "Under arousal conditions Ss who witnessed symbolically modeled pain administered more aversive stimulation."

Rosekrans and Hartup (1967) investigated the effects of consistent and inconsistent response consequences to the model on imitative aggressive behavior. Ss were 64 children ranging from 3 to 6 years of age. Exposure to a consistently rewarded model resulted in more imitative aggression than exposure to inconsistently rewarded models. No differences were observed between children in a no model condition and those in the inconsitently rewarded model condition. These "findings were interpreted in terms of an additive (canceling) éffect on vicarious reward and punishment." The authors also reported that the response consequences of the model had an effect on the amount of non-imitative aggression exhibited by children of different ages. Younger Ss performed more nonimitative aggressive acts than did older Ss.

Two studies are reported which deal with the characteristics of S as they relate to imitative aggression. Walters and Willows (1968) reported above used films of aggressive models and found that both disturbed and nondisturbed children imitated aggressive models. However, nondisturbed children imitated nonaggressive models more than disturbed Ss. The disturbed children were taken from an institutionalized population and were described as being hyperactive and diagnosed as character or behavior disorders. Epstein (1966) divided white subjects, with the help of the California F Scale, into high and low authoritarian groups. Ss observed a Negro or white model aggress against a Negro victim with either high or low status. Different raced models elicited the same amount of aggressive imitation from high authoritarian Ss. Low authoritarian subjects emitted more aggression when exposed to a Negro model. The author's interpreted these findings in terms of the undifferentiated functioning of high authoritarians. Effects due to the Negro victim's social status were not observed.

With the exception of Jones (1924) the use of modeling procedures to reduce avoidance responses in children is just beginning to appear in the research literature. This delay may be due to the fact that Jones reported mixed results. Two studies have been recently reported in which modeling procedures have been utilized to affect the facilitation of approach responses to objects that had previously elicited avoidance behavior. Bandura, Grusec and Menlove worked with 3 to 5 year old children who were afraid of dogs The children were put into one of four conditions: model plus positive party context, model plus neutral context; dog plus positive party context; and positive party context. The modeling procedures consisted of having a peer approach and play with a dog in a sequence of graduated steps. Results suggested that modeling procedures with or without the party context resulted in the exti nction of the avoidance responses and the facilitation of interaction behavior with dogs. A follow-up attempted one month later indicated that the results were maintained.

Bandura and Menlove (1968) worked with children who were fearful of dogs. Children were assigned to one of three groups. One group observed a graduated sequence of films where a model interacted more intimately with a single dog. Another group of children witnessed similar films in which several models interacted with dogs ranging in size and fearsomeness. A third group was exposed to films containing no animals. "Both the single-modeling and multiple modeling treatments effected significant reductions in children's avoidance behavior, but only the multiple-modeling treatment weadened their fears sufficiently to enable them to perform potentially threatening interactions with dogs." The authors also reported some data in support of the notion that fears are modeled. "In 17 of the avoidant children, 1 or more parents displayed dog fears."

There have been several studies utilizing modeling procedures to affect changes in cognitive and language behavior. Panman (1965) demonstrated that the acquisition of concepts with modeling procedures was possible. However, Ss who had learned the concepts with modeling procedures was possible. However, Ss who had learned the concepts with the help of modeling procedures were less able to transfer learning to another task when compared to Ss who had learned the concepts without the help of a model. Cody (1958) showed that modeling procedures could facilitate the acquisition and transfer of discrimination learning tasks. Bandura and McDonald (1963) were able to modify the moral judgments of children by using modeling procedures. The authors were unable to affect these changes when only using operant procedures. Bandura and Harris (1966) were able to utilize modeling and reinforcement procedures to change syntactic style in children. The authors felt that the results could be accounted for by assuming that "modeling cues served as a discriminative function signifying change in reinforcing contingencies."

The last study to be dealt with in this paper involves the use of modeling procedure for affecting the performance of prosocial behaivors. Children in the 4th and 5th grades were invited to participate in bowling games with an adult model. Whenever the model won a gift certificate for achieving a certain level of performance (manipulated by the experimenters) he gave half of it to a charity. Later on the Ss were allowed to play the game in the model's absence. "Among Ss who observed the model, it was primarily those Ss who contributed in the model's presence who also contributed in his absence.

DIRECTIONS FOR FUTURE RESEARCH

This section will briefly deal with some proposals for what, at present appears to be fruitful areas of study. The whole questiion of the generalizability of imitative learning across models and situations needs to be more thoroughly investigated. This question can also be proposed by asking to what extent imitation is a situational phenomena. Some of these issues can be dealt with by both correlational and experimental research. Also related to this type of question is the concern over the adaptiveness of imitative behavior. For example, under what conditions will imitation facilitate or interfere with task acquisition?

Much more developmental research needs to be done. For instance, does imitative learning occur more frequently at certain age levels? In other words, is imitation relied on more at certain ages than others? Do different factors effect the acquisition of imitative responses at different ages? In addition, imitative research can be used as a vehicle to determine the comparative effectiveness of adults and peers as they influence children at various ages.

The idea of utilizing modeling procedures needs to be more thoroughly investigated as therapeutic, educational and cultural learning tools. As can be observed from the above review, very little has been done with this. Consistent with this type of research would be the use of teachers as models to facilitate social learning in culturally divergent children.

It is also recognized that a need exists for the development of more sophisticated research designs in the area of imitative learning. Unless this occurs parametric and more subtle manipulations are not possible.

SUMMARY

Theories of modeling procedures and imitative learning were initially summarized. The distinction between the use of imitation as a process or outcome variable provided a conceptual framework for a review of the literature. However, it was felt that these distinctions had been confounded in the above theories. The paper concluded with suggestions and implications from future imitative learning research were briefly discussed.

References

Aronfreed, J. The effects of experimental socialization paradigms upon two moral responses to transgression. *Journal of Abnormal and Social Psychology*, 1963, *66*, 437-448.

Aronfreed, J. The nature, variety, and social patterning of moral responses to transgression. *Journal of Abnormal and Social Psychology*, 1961, *63*, 223-240.

Aronfreed,J. The origin of self-criticism. *Psychological Review*, 1964, *71*, 193-218.

Aronfreed, J., Cutlick, R. A., & Fagan, S. A. Cognitive structure, punishment, and nurturance in the experimental induction of self-criticism. *Child Development*, 1963, *34*, 281-294.

Baer, D. M., Peterson, R. F., & Sherman, J. A. The development of imitation by reinforcing behavioral similarity to a model. *Journal of Experimental Analysis of Behavior*, 1967, *10*, 405-416.

Baer, D. M., & Sherman, J. A. Reinforcement control of generalized imitation in young children. *Journal of Experimental Child Psychology*, 1964, *1*, 37-49.

Bandura, A. Social Learning Through Imitation, In M. R. Jones (Ed.), *Nebraska Symposium on Motivation*, 1962, Pp. 211-274.

Bandura, A. The role of imitation in personality development. *Journal of Nursery Education*, 1963, *18*, 207-215.

Bandura, A. Behavioral modifications through modeling procedures. In J. L. Krasner & L. P. Ullmann (Eds.), *Research in behavior modification*. New York: Holt, Rinehart, & Winston, 1965, Pp. 310-340 (a).

Bandura, A. Influence of model's reinforcement contingencies on the acquisition of imitative responses. *Journal of Personality and Social Psychology*, 1965, *1*, 589-695 (b).

Bandura, A., Grusec, J. E., & Menlove, F. L. Observational learning as a function of symbolization and incentive set. *Child Development*, 1966, *37*, 499-506.

Bandura, A., Grusec, J. E. & Menlove, F. L. Some social determinants of self-monitoring reinforcement systems, *Journal of Personality and Social Psychology*, 1967, *5*, 449-455 (a).

Bandura, A., Grusec, J. E. & Menlove, F. L. Vicarious extinction of avoidance behavior. *Journal of Personality and Social Psychology*, 1967, *5*, 16-23 (b).

Bandura, A., & Harris, M. B. Modification of syntactic style. Journal of Experimental Child Psychology, 1966, 4, 341-352.

Bandura, A., & Huston, Aletha C. Identification as a process of incidental learning. Journal of Abnormal and Social Psychology, 1961, 63, 311-318.

Bandura, A., & Kupers, D. J. Transmission of patterns of self-reinforcement through modeling. Journal of Abnormal and Social Psychology, 1964, 69, 1-9.

Bandura, A., & Menlove, F. L. Factors determining vicarious extinction of avoidance behavior through symbolic modeling. Journal of Personality and Social Psychology, 1968, 8, 99-108.

Bandura, A., & Mischel, W. Modification of self-imposed delay of reward through exposure to live and symbolic models. Journal of Personality and Social Psychology, 1965, 2, 698-705.

Bandura, A., & Perloff, B. Relative efficacy of self-monitored and externally imposed reinforcement. Journal of Personality and Social Psychology, 1967, 7, 111-116.

Bandura, A., & Rosenthal, T. L. Vicarious classical conditioning as a function of arousal level. Journal of Personality and Social Psychology, 1966, 3, 54-62.

Bandura, A. & Walter, R. H. Social learning and personality development. New York: Holt, Rhinehart and Winston, 1963.

Bandura, A., Ross, Dorthea, & Ross, S. A. Transmission of aggression through imitation of aggressive models. Journal of Abnormal and Social Psychology, 1961, 63, 575-582.

Bandura, A., Ross, D, & Ross, S. A. Imitation of film-mediated aggressive models. Journal of Abnormal and Social Psychology, 1963, 66, 3-11 (a).

Bandura, A., Ross, D, & Ross, S. A. Vicarious reinforcement and imitative learning. Journal of Abnormal and Social Psychology, 1963, 67, 601-607 (b).

Bandura, A., Ross, D, & Ross, S. A. A comparative test of the status envy, social power, and the secondary reinforcement theories of identificatory learning. Journal of Abnormal and Social Psychology, 1963, 67, 527-534 (c).

Bandura, A. & Whalen, D. K. The influence of antecedent reinforcement and divergence of modeling cues on patterns of self-reward. Journal of Personality and Social Psychology, 1966, 3, 373-382.

Baxter, J. C., Lerner, M. J., & Miller, J. S. Identification as a function of the reinforcing quality of the model and the socialization background of the subject. *Journal of Personality and Social Psychology*, 1965, *2*, 692-697.

Benton, A. A. Effects of the timing of negative response consequences on the observational learning of resistance to temptation in children. *Dissertation Abstracts*, 1967, *27* (6-B), 2153-2154.

Berger, S. M. Incidental learning through vicarious reinforcement. *Psychological Reports*, 1961, *9*, 477-491.

Berger, S. M. Observer practice and learning during exposure to a model. *Journal of Personality and Social Psychology*, 1966, *3*, 696-701.

Berkowitz, L., & Green, R. G. Film violence and the cue properties of available targets. *Journal of Personality and Social Psychology*, 1966, *3*, 525-530.

Bisese, V. S. Imitation behavior as a function of direct and vicarious reinforcement. *Dissertation Abstracts*, 1966, *26* (10), 6155.

Bronfenbrenner, V. Freudian theories of identification and their derivatives. *Child Development*, 1960, *31*, 15-40.

Bryan, J. H. & Test, M. A. Models and helping: naturalistic studies in aiding behavior. *Journal of Personality and Social Psychology*, 1967, *6*, 400-407.

Campbell, D. T. Conformity in psychology's theories of acquired behavioral dispositions. In I. A. Berg, & B. M. Bass (Eds.), *Conformity and Deviation*. New York: Harper, 1961. Pp. 101-142.

Clark, Barbara S. The acquisition and extinction of peer imitation in children. *Psychonomic Science*, 1965, *2*, 147-148.

Craig, K. D. Vicarious reinforcement and non-instrumental punishment in observational learning. *Journal of Personality and Social Psychology*, 1967, *7*, 172-176.

Ditrichs, R., Simon, S. & Greene, B. Effect of vicarious scheduling on the verbal conditioning of hostility in children. *Journal of Personality and Social Psychology*, 1967, *6*, 71-78.

Epstein, K. Aggression toward outgroups as a function of authoritarianism and imitation of aggressive models. *Journal of Personality and Social Psychology*, 1966, *3*, 574-579.

Flanders, J. P. A review of research on imitative behavior. Psychological Bulletin, In Press.

Friedman, R. M. Imitation as a function of the response consequences of the model. Unpublished Masters Thesis. Florida State University, 1967.

Geer, J. H., & Turteltaub, A. Fear reduction following observation of a model. Journal of Personality and Social Psychology, 1967, 6, 327-331.

Gelfand, D. M. The influence of self-esteem on rate of verbal conditioning and social matching behavior. Journal of Abnormal and Social Psychology, 1962. 65, 259-265.

Gilmore, J. B. Toward an understanding of imitation. Paper delivered at the 1967 Miami University Symposium on Social Behavior: Social Facilitation and Imitative Behavior. March 23, 1967, Oxford, Ohio.

Grusec, J, & Mischel, W. The model's characteristics as determinants of social learning. Journal of Personality and Social Psychology, 1966, 4, 211-215.

Grusec, J. Some antecedents of self-criticism. Journal of Personality and Social Psychology, 1966, 4. 244-252.

Hale, G. A., Miller, L. K., & Stevenson, H. W. Incidental learning of film content: a developmental study. Child Development, 1968, 39, 69-78.

Hanlon, C. C. The effects of social isolation and characteristics of the model on accent imitation in fourth-grade children. Dissertation Abstracts, 1965, 25 (10), 6076.

Hartmann, D. P. The influence of symbolically modeled instrumental aggression and pain cues on the disinhibition of aggressive behavior. Dissertation Abstracts, 1966, 26, (7), 4088.

Hartup, W. W., & Coates, B. Imitation of a peer as a function of reinforcement from the peer group and rewardingness of the model. Child Development, 1967, 38, 1003-1016.

Hetherington, E. M. A developmental study of the effects of sex on the dominant parent on sex-role performance, identification, and imitation in children. Journal of Personality and Social Psychology, 1967, 6, 119-125.

Hetherington, E. M. & Frankie, G. Effects of parental dominance, warmth, and conflict on imitation in children. Journal of Personality and Social Psychology, 1967, 6, 119-125.

Hill, W. F. Learning theory and the acquisition of values. *Psychological Review*, 1960, *67*, 317-331.

Jones, M. C. The elimination of children's fears. *Journal of Experimental Psychology*, 1924, *7*, 383-390.

Kagan, J. The concept of identification. *Psychological Review*, 1958, *65*, 296-305.

Kanareff, V. T., & Lanzetta, J. T. The acquisition of imitative and opposition responses under two conditions of instruction-induced set, *Journal of Experimental Psychology*, 1958, *56*, 516-528.

Kanareff, V. T., & Lanzetta, J. T. Effects of congruent social and task reinforcement upon acquisition of imitative responses. *Psychological Reports*, 1961, *8*, 47-57.

Kanfer, F. H., Bradley, M. A., & Marston, A. R. Self-reinforcement as a function of degree of learning. *Psychological Reports*, 1962, *10*, 885-886.

Kanfer, F. H., & Marston, A. R. Human reinforcement: vicarious and direct. *Journal of Experimental Psychology*, 1963, *65*, 292-296 (a).

Kanfer, F. H. & Marston, A. R. Determinants of self-reinforcement in human learning. *Journal of Experimental Psychology*, 1963, *66*, 245-254 (b).

Kimbrell, D. & Blake, R. R. Motivational factors in the violation of a prohibition. *Journal of Abnormal and Social Psychology*, 1958, *56*, 132-133.

Klinger, E. Modeling effects on achievement imagery. *Journal of Personality and Social Psychology*, 1967, *7*, 49-62.

Kuhn, D. Z., Madson, C. H. & Becker, W. C. Effects of exposure to an aggressive model and "frustration" on children's aggresive behavior. *Child Development*, 1967, *38*, 739-745.

Lefkowitz, M. M., Blake, R. R., & Mouton, J. S. Status factors in pedestrian violation of traffic signals. *Journal of Abnormal and Social Psychology*, 1955, *51*, 704-706.

Lewis, D. J. & Duncan, C. P. Vicarious experiences and partial reinforcement, *Journal of Abnormal and Social Psychology*, 1958, *57*, 321-326.

Lovaas, O. J. Effect of exposure to symbolic aggression on aggressive behavior. *Child Development*, 1961, *32*, 37-44.

Lovaas, O. J., Berberlich, J. P., Perloff, B. F., & Schaeffer, B. Acquisition of imitative speech by schizophrenic children. *Science*, 1966, *151*, 705-707.

McDavid, J. W. Imitative behavior in preschool children. *Psychological Monographs.* 1959, *73*, No. 16.

McDavid, J. W. Effects of ambiguity of environmental cues upon learning by observation. *Journal of Social Psychology*, 1964, *62*, 165-174.

McMains, M. J. & Liebert, R. M. The influence of discrepancies between successively modeled self-reward criteria on the adoption of self-imposed standard. *Journal of Personality and Social Psychology*, 1968, *8*, 166-171.

McNulty, J. A. & Walter, R. H. Emotional arousal, conflict, and susceptibility to social influence. *Canadian Journal of Psychology*, 1962, *16*, 211-220.

Maccoby, E. E. Role-taking in childhood and its consequences for social learning. *Child Development*, 1959, *30*, 239-252.

Maccoby, E. E., & Wilson, W. C. Identification and observational learning from films. *Journal of Abnormal and Social Psychology*, 1957, *55*, 76-87.

Madsen, C. H. The effects of experimental "nurturance" on modeling including a preliminary investigation on parental child-rearing antecedents. Unpublished Doctoral Thesis, 1965, University of Illinois.

Madsen, C. H. Nurturance and modeling in pre-schoolers. *Child Development*, 1968, *39*, 221-236.

Maley, R. F. The effect of certain imitative cues upon the learning of response patterns. *Dissertation Abstracts*, 1967, *28* (B), 2645.

Marston, A. R. Imitation, self-reinforcement, and reinforcement of another person. *Journal of Personality and Social Psychology*, 1965, *2*, 255-261.

Marson, A. R. Determinants of the effects of vicarious reinforcement. *Journal of Experimental Psychology*, 1966, *71*, 550-558.

Marston, A. R. & Kanfer, F. H. Group size and number of vicarious reinforcements in verbal learning. *Journal of Experimental Psychology*, 1963, *65*, 593-596.

May, J. G. A developmental study of imitation. Unpublished Doctoral Dissertation. Indianna University, 1966.

May, J. G. Some factors affecting imitation learning in children. Paper presented at the Southeastern Psychological Association, Roanoke, Virginia, April, 1968.

May, J. G. & Breyer, N. L. The effects of race and socio-economic status on imitation learning in children using white male and female models. Paper presented at the Southeastern Psychological Association, Roanoke, Virginia, April, 1968.

May, J. G., Friedman, R. M. & Moore, Pamela. Imitation as a function of the response consequences of the model. Paper presented at the Southeastern Psychological Association, Roanoke, Virginia, April, 1968.

May, J. G. & Seymour, Judith. Imitation as a response class. Paper presented at the Southeastern Psychological Association, Roanoke, Virginia, April, 1968.

Miller, N. E. & Dollard, J. *Social learning and imitation.* New Haven: Yale University Press, 1968.

Mischel, W. A social learning view of sex differences in behavior. In Eleanor E. Maccoby (Ed.), *The Development of Sex Differences*, Stanford: Stanford University Press, 1966, 56-81.

Mischel, W. & Grusec, J. Determinants of the rehearsal and transmission of neutral and aversive behaviors. *Journal of Personality and Social Psychology*, 1966, *3*, 197-205.

Mischel, W. & Liebert, R. M. Effects of discrepancies between observed and reward criteria on their acquisition and transmission. *Journal of Personality and Social Psychology*, 1966, *3*, 45-53.

Mischel, W. & Liebert, R. M. The role of power in the adoption of self-reward patterns. *Child Development*, 1967, *38*, 673-383.

Mowrer, O. H. *Learning theory and personality dynamics*. New York: Ronald Press, 1950.

Mowrer, O. H. *Learning theory and symbolic processes*. New York: Wiley, 1960.

Munsen, P. H. & Rutherford E. Effects of aggressive cartoons on children's aggressive play. *Journal of Abnormal and Social Psychology*, 1961, *62*, 461-464.

Mussen, P. & Distler, L. M. Child rearing antecedents of masculine identification in kindergarten boys. *Child Development*, 1960, *31*, 89-100.

Panman, R. A. Concept learning by imitation. *Dissertation Abstracts*, 1965, *25* (9), 5428.

Peterson, R. F. Building generalized response systems. Paper presented at the 75th annual meeting of the American Psychological Association, Washington, D. C., September, 1967.

Piaget, J. Play, dreams and imitation in childhood, New York: Norton, 1951.

Rosekrnas, M. A. & Hartup, W. W. Imitative influences of consistent and inconsistent response consequences to a model on aggressive behavior in children. Journal of Personality and Social Psychology, 1967, 7, 429-434.

Rosenbaum, M. E. The effect of verbalization of correct responses by performers and observers on retention. Child Development, 1967, 38, 615-623.

Rosenbaum, M. E. & Tucker, I. F. The competence of the model and the learning of imitation and nonimitation. Journal of Experimental Psychology, 1962, 63, 183-190.

Rosenblith, Judy F. Learning by imitation in kindergarten children. Child Development, 1959, 30, 69-80/

Rosenblith, Judy F. Imitative color choices in kindergarten children. Child Development, 1961, 32, 211-223.

Rosenhan, D. & White, G. M. Observation and rehearsal as determinants of prosocial behavior. Journal of Personality and Social Psychology, 1967, 5, 424-431.

Ross, D. Relationship between dependency, intentional learning and incidental learning in preshcool children. Jounal of Personality and Social Psychology, 1966, 4, 374-381.

Saltzstein, H. D., Rowe, P. R. & Greene, Martha E. Spread of social influence on children's judgements of numerosity. Journal of Personality and Social Psychology, 1966, 3, 665-674.

Sears, Pauline S. Child-rearing factors related to playing of sex-typed roles. American Psychologist, 1953, 8, 431.

Sears, R. R. Identification as a form of behavioral development. In D. B. Harris (Ed.), The concept of development. Minneapolis: University of Minnesort Press, 1957, 147-161.

Sears, R. R. Dependency motivation. In Marshall R. Jones (Ed.), Nebraska Symposium on Motivation, University of Nebraska Press, 1963, 25-64.

Sears, R. R., Eleanor E. Maccoby & H. Levin. Patterns of child rearing. New York: Harper & Rowe, Publishers, Incorporated, 1957.

Sears, R. R., Raw, Lucy & Alpert, R. Identification and child rearing, Stanford: Stanfor University Press, 1965.

Sgan, Mabel L., Social reinforcement, socioeconomic status and succeptibility to experimenter influence. Journal of Personality and Social Psychology, 1967, 5, 202-212.

Solomon, R. L., & Coles, M. R. A case of failure of generalization of imitation across drives and across situations, Journal of Abnormal and Social-Psychology, 1954, 49, 7-13.

Stein, Aletha H. Imitation of resistance to temptation. Child Development, 1967, 38, 157-169.

Walters, R. H., Bowen, N. V. & Parke, R. D. Influence of looking behavior of a social model on subsequent looking behavior of observers of the model. Perceptual Motor Skills, 1964, 18, 469-483.

Walters, R. H., Leat, Marion & Mezei, L. Inhibition and disinhibition of response through empathetic learning. Canadian Journal of Psychology, 1963, 17, 235-243.

Walters, R. H. & Parke, R. D. Influence of response consequences to a social model on resistance to deviation. Journal of Experimental Child Psychology, 1964, 1., 269-280.

Walters, R. H. & Parke, R. D. The role of the distance receptors in the development of social processes in advances In Child Development and Behavior, Volume 2, L. P. Lipsitt & C. C. Spiker (Eds.), Academic Press, 1965, New York, 59-96.

Walters, R. H., Parke, R. D. & Cane, Valerie A. Timing of punishment and the observation of consequences to others as determinants of response inhibition. Journal of Experimental Child Psychology, 1965, 2, 10-30.

Walters, R. H. & Llewellyn, T. E. Enhancement of punitiveness by visual and audiovisual displays. Canadian Journal of Psychology, 1963, 17, 244-255.

Walters, T. H. & Willows, Donna C. Imitative behavior of disturbed and nondisturbed children following exposure to aggressive and nonaggressive models. Child Development, 1968, 39, 79-89.

Whiting, J. W. M. Resource mediation and learning by identification. In I. Iscoe & H. W. Stevenson (Eds.), Personality development in children. Austin, Texas: University of Texas Press, 1960, 112-126.

Wilson, W. C. Imitation and the learning of incidental cues by pre-school children, Child Development, 1958, 29, 393-397.